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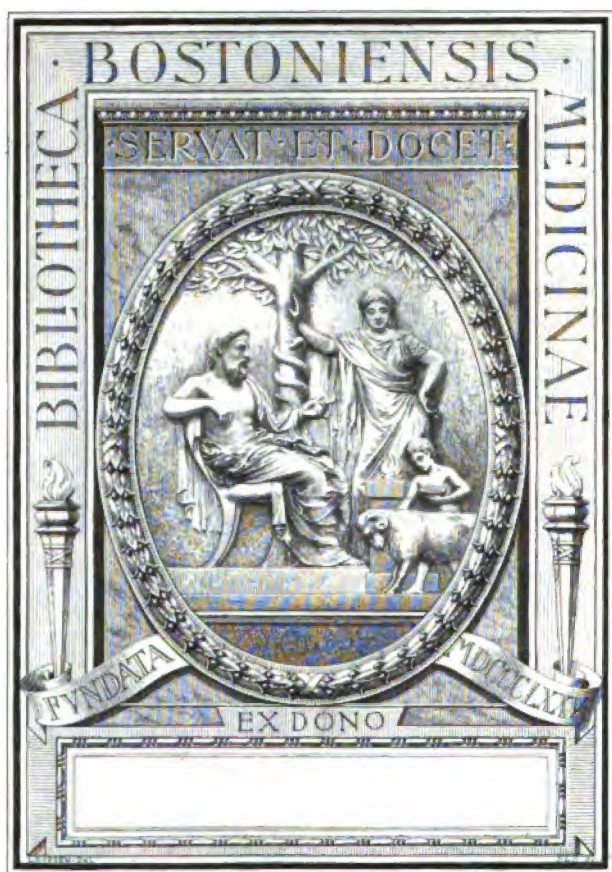
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**JOURNAL OF THE ASSOCIATION OF
MILITARY SURGEONS OF THE
UNITED STATES.**



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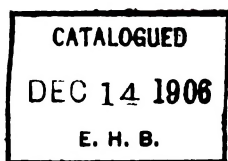
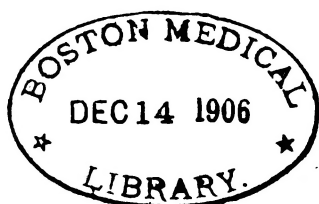
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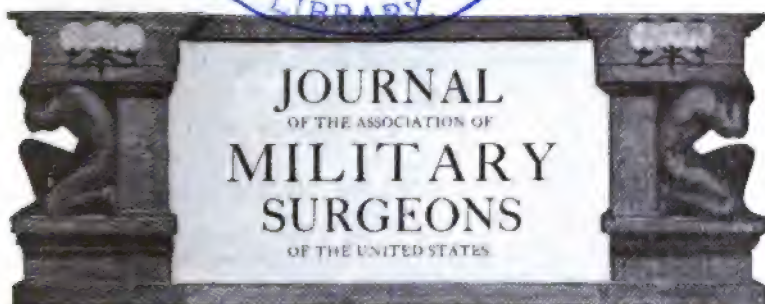
VOLUME XVII.



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Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

THE NEEDS AND ADVANTAGES OF AN INTERNATIONAL CONGRESS OF MILITARY SURGEONS.

By COLONEL NICHOLAS SENN,
SURGEON GENERAL OF ILLINOIS.



THE military surgeon represents the non-combatant part of every army. His functions in peace and war consist in protecting the troops against disease by establishing and enforcing appropriate sanitary measures, in the rational treatment of disease and in the care of the wounded by methods which in civil practice have yielded the best results. In war he is expected to practice aseptic precautions on the battle field, field and base hospitals as far as the surroundings will permit in order to prevent the usual complications which in the past have been the greatest source of anxiety and solicitude to the military surgeon, the terror of the military hospitals and the most fruitful cause of death of the wounded who survived the immediate

effects of their injuries. The military surgery of today should represent as nearly as possible the surgery of a well equipped civil hospital. The best attainable results should be aimed at by the employment of the simplest and yet most effective aseptic precautions. The state of perfection, surgery has attained in civil practice at the present time is not the result of the genius or research of any one man although the foundation for it was laid by the immortal Lister but it represents the patient, persistent toil of an army of investigators, the gradual accumulation of positive knowledge contributed by representative men of science from all parts of the civilized world, by the hospitals and laboratories of all nations who have the best interests of humanity at heart. With the advancement of surgery the duties and responsibilities of the military surgeon have increased in proportion to the progress made. We as guardians of the health of our military clientele can no longer ignore the fact that the soldier engaged in the defense of the honor and interests of the country he serves when ill or wounded is entitled to the very best that modern medicine and surgery can offer to the civilian. I fear this is not the case even amongst the most enlightened nations. The soldier who risks his health and life for a trivial financial remuneration inspired by patriotism and a stern sense of duty, when disabled by sickness or wound is entitled to the same consideration and care that a civilian surgeon would bestow upon a millionaire patient with the expectation of receiving a substantial financial reward for his solicitous care and skillful services. The regulation of international affairs by arbitration will unquestionably contribute much in maintaining the peace of the world but for centuries to come it will not do away with a resort to arms in correcting wrongs and in the administration of justice.

Nations like individuals are occasionally confronted by difficulties which no amount of arbitration can settle and which nothing but the sword can decide. The old spirit of chivalry, although held in check by humane endeavors to minimize warfare, will occasionally assert itself where national honor and common interests are at stake. The tendencies of the present age are to avoid war if possible by peaceful measures and if such

efforts fail to render warfare more and more humane. By international agreements governments are limited in the choice of firearms, the sick and wounded and the prisoners of war may confidently expect humane treatment thus stripping the battlefield of its greatest horrors and ancient barbarities by making it the seat of a manly struggle, a combat as humane as the inevitable results of actual warfare will permit. The military authorities who plan and conduct wars have done their share in the cause of humanity but it is the non-combatant part of the armies which has accomplished most in eliminating from the battlefield avoidable casualties and in bringing to the disabled combatants prompt medical aid, encouragement and comfort. It is the medical officer and his subordinates who in camp, on the march, on the battlefield and in hospitals, who are representatives of the humane element of modern warfare.

It is the medical corps of whom it may be said:

"Men approach nearer to the gods in no way than by giving safety to men."—*Cicero*.

The science and art of surgery have reached their present high state of accuracy and efficiency through the united efforts and hearty co-operation of scientists and surgeons throughout the world. An honest laudable rivalry between individuals, schools, societies and countries has done much to bring about what has been accomplished. The advancement of surgery by scientific research and accurate clinical observation has been the one common aim and the results obtained have become the common property of all. Go where you will and you will find everywhere indications that the great doctrine of asepsis has reached the most remote parts of the earth; methods to secure it may differ widely but they are all based on the same well established principles. Every country, every large city, has its own Surgical Society. Surgical literature has accumulated at an enormous rate and the Surgical section of all large Medical Societies and Medical Congresses has always had the largest, most interested and most enthusiastic attendance. It is this intense common interest in the progress of Surgery that has accomplished in a quarter of a century results far beyond the bounds of the most sanguine expect-

tations. Military Medicine and Surgery in their broadest and most comprehensive sense must be benefitted to the fullest extent by the revolutionary changes which the healing art has undergone within the memory of most of the members of this Congress. Among the most important duties which now concern the Military Surgeons is the one which has for its object to convey the blessings of modern medicine and surgery as practiced in civil life to the soldiers in camp, field and hospitals. The way to accomplish this most effectually is a task which concerns us today. In war and even in peace the Military Surgeon has to contend with difficulties unknown to the practitioner in private life. The Military Surgeon must be resourceful, able to place in effect the principles if not the details that are imposed by the high standard of private medical and surgical practice of today. Military medicine and Surgery will always retain their individuality, characterized by simplicity. If there is any one class of medical men that are in need of united efforts in the development of their special work to the highest possible degree of perfection it is the men who are entrusted with the medical care and physical welfare of the soldier. Military medicine and surgery are still in their infancy. It is left for us and our immediate successors to make them what they are entitled to be, the crowning triumphs of the healing art. The Association of Military Surgeons of the United States is a convincing demonstration of what can be accomplished by united action. Our transactions are a living witness of what can be accomplished by combined efforts. For the last thirteen years the medical branch of the government service represented by the Army, Navy, Marine Hospital Service and National Guard have co-operated in our annual meetings and have contributed liberally toward the progress of Military and Naval Surgery and many of the contributions have not only advanced the interests and efficiency of our Military and Naval Medical Service but have found a permanent place in the literature of the world devoted to the betterment of military medicine and surgery. There should not be and there is not any objection to the joining of hands by all nations in perfecting the practice of medicine and surgery as taught and practiced in the ar-

mies of the world. We are non-combatants unincumbered by secrets, free to serve friend and enemy, in the discharge of our humane duties. The flag we serve under does not prevent us to extend our humane work beyond the limits of the fighting line. No civilized nation should be narrow-minded enough to place a check on the progress of military surgery for

"In every thing the consent of all nations is regarded as the law of nations."—*Cicero*.

The men whose duty it is to plan and execute war to kill, maim, starve and disable have secrets to guard to accomplish their designs with a minimum sacrifice and greatest loss to the enemy. We as Military Surgeons have no secrets to observe, our duty consists in saving life and our services are not limited by strategic lines and include the sick and wounded without making a distinction between friend and foe. We represent the humanitarian side of warfare, and have a common interest in the treatment of the disabled regardless of the flag for which they fought. Much remains to be done in making the Medical Departments of the armies and navies most efficient in peace and more effective in war. Sanitation, hygiene, transportation of the sick and wounded, first aid, military therapeutics and surgery in the field are all subjects of the greatest importance to us all; subjects which await further elucidation by united efforts.

Surgery and the various specialties in surgery have all their international organizations, societies and congresses devoted to the advancement of the departments of surgery which they represent. The great field of military sanitation, hygiene, surgery and medicine so much in need of further improvement has been sadly neglected. The time is ripe to take action looking toward the organization of a permanent International Congress of Military and Naval Surgeons which like the International Medical Congress should convene every three years and alternately with the meeting of the Medical Congress.

The Military section of the International Medical Congress has done much in promoting that part of the healing art which it represents and deserves our further earnest support, but an International Congress devoted exclusively to military medicine and

surgery would fill a long felt need and would become the means of exciting a renewed interest in the study and elucidation of the subjects with which we as military men are interested. It would unify our efforts for the benefit of the disabled soldier and create a literature which could not fail in leading to a speedy betterment of military practice. This is the opportune time to create this permanent bond of union between the military surgeons the world over.

Let us create a Congress that will be a credit to the great branch of military service which we have the honor to represent and whose main object shall be to render war more and more humane until the millenium of peace will take possession of the earth and wipe away from its face national and international strife and establish a permanent brotherhood of man. It is then and only then that our profession will have completed its task in the teaching and practice of humanity. It is then the vision of the immortal poet will become a reality:

"Ring out old shapes of foul disease,
Ring out the narrowing lust of gold;
Ring out the thousand wars of old,
Ring in the thousand years of peace!"

Tennyson.

DISCUSSION.

(PRELIMINARY TO THE READING OF THE PAPER.)

THE PRESIDENT—Colonel Senn has a short paper to present in connection with the resolution he presented yesterday, and I am sure I voice the sentiment of all when I say we shall have great pleasure in listening to his suggestions [Applause].

COLONEL NICHOLAS SENN—I owe you an apology for having been absent at three consecutive meetings of the Association. I can assure you it was not because I had lost interest in the Association. At one time I was suffering with la grippe, at another time I was in attendance on the Seventh International Conference of the Red Cross at St. Petersburg and a third time was absent while attending in similar capacity as an official delegate of the United States the Madrid International Medical Congress. I have the satisfaction of knowing that my absence has not interfered with the rapid advancement this Association has made. My successors in the chair have accomplished heroic work, and they in conjunction with our able secretary have been the means of advancing the affairs of the Association to a very

INTERNATIONAL CONGRESS OF MILITARY SURGEONS. 7

remarkable extent. It is this progressive success of the Association of Military Surgeons of the United States that has created the idea in my mind that it might be possible to make it the parent of a larger organization of a similar character in which all civilized countries could take part. I refer to the advisability of the organization of a permanent International Congress of Military Surgeons. In making the trip around the world I occupied a little of my time in writing down a few thoughts in connection with realizing such an object which I will now present to you.

(FOLLOWING THE READING OF THE PAPER)

SURGEON CHARLES F. STOKES, U.S.N.—I should like to say a word in connection with this paper. I have been greatly interested in it but notice that the words "naval surgeons," "sailors" and "marines," are conspicuously absent.

A day or two ago I was told that Colonel Senn in reporting his work in Cuba had published the statement that "naval surgeons knew no surgery and could not know surgery in the nature of things," or words to that effect. I should like to hear now the distinguished gentleman stands in that matter today.

Few in our country outside the medical corps of the navy knew military surgery from the period of the Civil War up to 1898. Edgar and Stitt were among the first, if not the first, to report on the effects of the new jacketed bullet of small calibre and high velocity in actual warfare as a result of their experiences in Chili in 1891. Many others including Tryon, Urie, Braisted and Spear have reported their work on shore in the field with the forces of Central and South American countries.

The surgery in our hospitals will compare favorably with the work in hospitals elsewhere.

We look after some 46,000 sailors and marines, the officers and their families, communities not otherwise provided with medical attendance, and we give emergency treatment to the thousands of mechanics employed in our great navy yards. The traumatism of building and manning our battle-ships are varied and numerous. This is our immediate field of work and in my opinion we look after it pretty well.

Beginning nearly twenty-two years ago I served in four different hospitals in New York City, and have seen surgery in many parts of the world, including our own country, and I feel safe in saying that there is no material difference between the surgery we practice and the best of the surgery practiced outside the navy.

COLONEL SENN—I alluded particularly to naval surgeons in the proposed organization of military and naval surgeons, because I felt that if any branch of the government medical service needs improvement it is naval surgery. It is the naval surgeon that has to deal with infected wounds, while we as military surgeons have reached in our field proper a high degree

of perfection because we are dealing largely with aseptic wounds. The purpose of my plea was to form a permanent organization, an international military congress, including naval surgeons and all branches represented in this Congress, to work together harmoniously, and I can promise the naval surgeons that they will find the military surgeon ready at all times to render assistance in the further progress and development of naval surgery.

SURGEON CHARLES F. STOKES, U.S.N.—About half the medical officers of the Navy were brought up in the age of pus in surgery and should be adepts in that field today. The other surgery, of course, is quite different. We are all working in the new field, the field of sepsis as well. The fact that our military surgery is by no means confined to work on board ship must not be lost sight of. We serve in the field with our sailors and marines and are confronted by the same conditions that army surgeons are obliged to meet, while opportunities to serve on shore with the forces of foreign countries are not at all uncommon.

THE WOUNDS INFLICTED BY THE JAPANESE RIFLE.

THE Chief Surgeon of the Russian Army in Manchuria, Colonel Wredin, contributes to the *Militärärztliche Zeitschrift* a note on the effects of the Japanese rifle. Within 200 yards the hydrodynamic force of the bullet is exceedingly marked,—wounds of the skull being fatal, the long bones being much comminuted and the alimentary canal extensively injured. This explosive character terminates at from 400 to 800 yards. At greater distances the wounds, including those of the lung, are of a comparatively mild character except in case of the abdominal organs, infection being unusual. At from 800 to 1000 yards bones are liable to be comminuted. Beyond 1000 yards the missiles usually remain in the tissues and do not injure the bone. Colonel Wredin considers the Japanese bullet a humane missile and notes, in evidence of that fact, that 32 per cent of all the wounded at the battle of Turentschen returned to duty within a month. The proportion of killed to wounded by rifle wounds is one to three, but the mortality of the rapid fire artillery is tremendous, the course of the wounds exceedingly serious, all being infected, and the mortality very high. Shell wounds are naturally accompanied with great laceration and later tissue necrosis and extensive suppuration, due to the introduction of foreign bodies into the wounds.

CAMP SANITATION.

By MAJOR HERBERT ALONZO ARNOLD.

SURGEON IN THE NATIONAL GUARD OF PENNSYLVANIA.

THERE are songs that never grow old, tales that bear re-telling, and themes that do not become wearisome under repetition. Camp Sanitation has been presented to your notice so frequently that it has become an "old, old story," which, through lack of enforcement, as a result of carelessness, negligence or forgetfulness requires telling "o'er and o'er."

A frequently quoted military maxim is, an army travels on its stomach; the underlying thought being the necessity for an efficient commissariat; but, of what use is the best equipped and most capable department of subsistence, *if the army has no stomach?*

The boy in blue, or the gentleman in khaki, on leaving home, becomes the object of deep solicitude on the part of anxious friends, lest speeding bullet or bursting shell end the dream of glory and fill another patriot grave. They little reck the real danger which lurks in darkness and destroys ingloriously.

The prophet of Israel stands upon Horeb, and a great and strong wind rent the mountains, and broke in pieces the rocks, but Omnipotence was not in the wind: and after the wind an earthquake; but Omnipotence was not in the earthquake: and after the earthquake a fire, but Omnipotence was not in the fire: and after the fire *a still small voice*—Omnipotence manifested.

The shock and din of battle is awe-inspiring, but 'tis not here the soldier's greatest danger is found; the long hurried march is but fatiguing to an army not previously enervated. Where, then, shall we find the soldier's strongest foe?

The still small force, ever at work in the *deadly camp*, is the enemy most to be dreaded, for this it is that robs the army of its stomach, and fills by far the greatest number of graves.

History records few wars so bloody as our Civil war, when, from May, 1861, to July, 1866, the mortality among the United States forces was as follows:—

Killed in battle.....	44,238	
Died of wounds.....	49,731	
		93,969
Died of disease.....	186,216	
Died, unknown causes.....	24,184	210,400
Total.....		304,369

The contrast is startling, but this is not all the work accomplished by the still, small force. Tabulated statistics show the occurrence of 6,029,564 cases of sickness during this same period, all depriving this vast army of its stomach for a considerable period of time.

It is not my intention to weary you with statistics. They are available to each of you, and are equally conclusive as those quoted above.

Disease is the soldier's greatest foe, and he who has a knowledge of the laws of correct living, and has the ability to secure their enforcement, occupies a position scarcely second to the Military genius who plans the campaign and leads to victory.

The medical officer is held accountable for all defects of sanitation, outbreaks of contagion, disease, enervation of troops or other physical cause which impair the efficiency of the army. It does no good to attempt to place the blame upon field, staff, line or department, the odium rests with us, and in every campaign we hear the story of the medical department breaking down. It behooves us then to so inform ourselves upon matters of sanitation, and the means of securing its enforcement that we cannot be chargeable either with incompetence or neglect.

My object being to impress rather than instruct, the medical officer of the regular service, schooled in military hygiene, scarce needs a presentation of this subject by me; but deductions from experience in and study of camp sanitation, during the last ten years, in the volunteer service in the States and Porto Rico, in the summer camp of the National Guard and field duty during

industrial disturbance, may enable me to present the subject in such a manner as to prove profitable to National Guard officers whose facilities for observation and experimentation are not so good as those of the medical officer of a state which annually places 10,000 men in the field for a period of eight days. Our summer encampment is a camp of instruction, and a spirit of emulation obtains which causes each regimental medical officer to do his best to make his camp a model from a sanitary standpoint. In consequence we see advancement year by year, until we have reached a point of excellence scarce dreamed of ten years ago. My deductions and conclusions are mainly from experience as medical officer of battery of artillery, squadron of cavalry and regiment of infantry. These are the positions where responsibility begins, and the sanitary condition of the brigade, division or corps is just what the medical officer of the lesser organizations makes it.

CAMP SITE.

Much is said and written about the Model Camp Site, and one might almost suppose that an army carried along with it an elevated section of undulating ground, with porous soil and rapid flowing, pure water near at hand. These things are desirable and always to be secured when possible, but the exigencies of the case do not always admit of it, and then the surgeon has his opportunity to rise to the situation and show what he is made of.

During the industrial disturbance in the anthracite regions of Pennsylvania in 1902, expediency demanded that the first battalion, sixth regiment N. G. P. occupy a very undesirable piece of ground. It was an open lot adjoining a culm bank, and received the washings from the back yards of a row of miner's houses. Its surface was thickly strewn with all manner of refuse, and a deep gully had been washed diagonally across it. Its area was limited, and a heavy growth of young timber occupied the highest spot, which being the southern end shaded the camp during the greater part of the day. New channels were dug to direct the water, all washes filled in with material from the culm bank, cinders hauled from a nearby breaker covered the streets and tent floors, thus effectually doing away with a greasy black

mud which was very annoying. The results of hard work were manifest, both from an aesthetic and hygienic standpoint, and a tour of duty of 28 days terminated with but one man having been off duty—a cook, who contracted pneumonia.

Except for temporary occupancy during a forced march, troops should never camp upon any site that has not been approved by a competent medical officer. The responsibility of location and system of camp construction rests entirely with us, hence the necessity for our acquiring such knowledge of our duties as sanitarians as shall enable us to choose wisely and speak authoritatively.

Any site that has recently been occupied by troops should be condemned. The best regulated camp must lead to ultimate soil pollution with organic matters, and this in turn to contaminated water, if the source of supply is near at hand.

The National Guard of Pennsylvania annually goes into camp for a period of eight days. The custom for ten years has been to have division and brigade camp alternately. The site is selected by a board of officers, one of whom is a competent medical officer.

For division camp of ten thousand men a large tract of land is required, and great care is exercised to see that it is sufficiently undulating to provide good drainage, and has a soil sufficiently porous to take care of all rainfall. This is a necessity, as every spare moment of time is occupied by drill, maneuver or inspection, and the ground must at all times be in condition for use regardless of weather. Proximity to railroad is another consideration, that troops and supplies may be handled without delay.

Sinks are dug and water piped to camp prior to the arrival of troops. Aside from these preliminaries, all work of camp construction devolves upon the troops. An advance detail of six or seven men from each company, reaches the campground 36 to 48 hours ahead of the main body. They have most of the canvas erected when the balance of the troops arrive, which is late Friday night or early Saturday morning. The first day is a very busy one for the medical department getting things in shape for the thorough inspection of camp Sunday morning at nine o'clock.

This inspection embraces personal appearance, quarters, company streets, mess tents, kitchens, cooks, water line, sinks and stable, and every foot of ground is covered.

LATRINES.

Troops should not occupy a camp ground one hour without sinks. If not previously constructed a detail should immediately be set to work upon their construction. Located preferably at the rear of the camp sufficiently far from the kitchens, they should be dug deep enough to not require too frequent renewal, and should have provision made to ensure privacy.

Our system provides pits 16 feet long, 4 feet wide and 8 feet deep. These are shared by two adjacent companies, both companies being held responsible for the condition of that sink. A somewhat smaller sink is provided at the centre of the sink line for officers, and another for the use of the band.

Side walls of light muslin provide privacy, and a canvas roof protects from rain. The seats are board and board urinals are placed at each end. Entrance is from the ends, by a walls-of-Troy arrangement of the side walls. The excavated earth is thrown on a pile to the rear, and is used to some extent to lightly cover defaecated matter in the sink. These sinks are regularly policed and disinfectants used several times a day. Various substances have been used for this purpose, such as sulphate of iron, air-slaked lime and crude petroleum. Of these the crude oil is incomparably the best. It floats on top in case water is present in the sink. An ordinary sprinkling pot furnishes the best means of applying it, and the side walls should not be overlooked in its application. In addition to its commendable feature of floating on top of any water that may be in the sink, it excludes all flies, mosquitoes and other insects, thereby eliminating all danger of infection from that source,

These sinks are of ample size for our tour of duty, are partially covered with earth at intervals and subsequently filled in when we break camp.

GARBAGE.

No garbage, dish water or other refuse is ever allowed to be thrown upon the ground or deposited in the sinks. The pit sys-

tem has been tried in the past, but for several years experiments have been tried with various plans for burning the garbage. A certain amount is burned by the cooks at the kitchen fires, but the disposal of the liquid portion of the garbage has always presented difficulties.

Each mess kitchen is provided with a galvanized iron garbage can, of about forty gallons capacity. One of smaller size, in use at the hospital receives all soiled cotton, dressings and other refuse matter except excreta. Close fitting lids exclude flies and prevent odors, and are never removed except during filling and emptying of the cans. These cans are symmetrically and conveniently located near the kitchens, preferably on the stove line. They receive all garbage, and one man, one horse and a light wagon remove them to the crematory, where their contents are dumped and the cans returned to their places. With the assistance of a cook to load on the wagon, and a man at the crematory to empty, this one team can readily care for all garbage for a brigade of four twelve-company regiments. The teamster and crematory attendant are preferably civilians. Manure from the stables should be similarly disposed of, and makes excellent fuel.

This has been made possible by a crude crematory that has reached perfection through experimentation in company, battalion, regimental and brigade camps. At division camp in July of this year, one plant for each brigade effectually cared for all garbage, tin cans, bottles and camp refuse except excreta, during the entire tour of eight days.

CREMATORY.

The plan of crematory I have found most efficient is constructed as follows:—

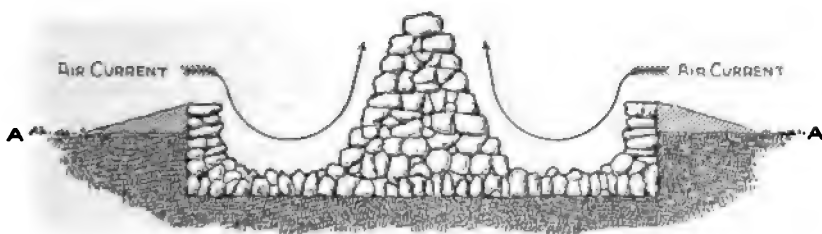
At some convenient spot at the rear of the camp, a circular pit is dug three feet deep and fifteen feet in diameter. The bottom is covered with loose stones to the depth of fourteen to sixteen inches. On this is built a circumferential wall to the height of one foot above the original ground level, and the excavated earth is packed against it, clear to the top so as to provide a sloping approach and thereby prevent surface water gaining access to

the pit. A pyramid of large stones, four or five feet high occupies the centre. This feature is essential to provide central draft and steady fire.

The bottom stones receive the liquid portions of the garbage without affecting the fire, and the heated stones soon evaporate and dissipate it. The solid portions are soon dessicated and become fuel. Care should be exercised to empty the garbage into and not around the crematory.

Such a plant as this was used by me for a four-company battalion for twenty-eight days during the industrial disturbance, October, 1902.

Old railroad ties and discarded mine timbers were used as fuel, at no expense to the State, and after a roaring hot fire had heated the stones intensely hot, orders were issued that all kitchen



Crematory—Vertical Section.

A. A.—Ground Level.

garbage, dish water, coffee grounds and slops of all kinds, tin cans, camp refuse, etc., must be deposited in the crematory for destruction. The fuel required was about twelve to fifteen ties a day, and complete disposition was made of all camp refuse *without odor* or the necessity for garbage sinks. At the close of nearly one month of constant service it was still doing faithful work without having had to be cleaned out or discarded.

The pit system is not in the same class with the crematory, and after thorough trial, I feel that I cannot endorse this method too highly, and am satisfied that it will succeed effectually, and without odor, in disposing of a universally recognized camp nuisance.

So well satisfied am I with this method that I will forbear reference to all expensive crematories, which requiring transpor-

tation, add to impedimenta without being superior to this crude form, which has the additional commendable features of speedy and economical construction.

KITCHENS.

The kitchen tent, with fly extension, should be placed about twelve to fifteen feet to the rear of the mess tent, and should be the object of especial attention from the medical officer. In this tent rations should be conveniently and neatly stored. The floor should be kept clean at all times, and the side walls raised each day, if possible, to allow access of air and sunshine. Our cooks are enlisted men, but are ready with excuses, and slow to obey, unless they are made to understand that they are amenable to discipline. A brief period of rigid scrutiny generally suffices to ensure cleanliness, and when they find that carelessness and untidiness add to their labors they exercise a personal supervision over their surroundings that make our labors lighter.

My personal preference is for dirt floors, as any soiling by accidental or intentional dropping of slops may be remedied by immediately covering the spot with wood ashes from the fire, thereby effectually disinfecting it.

COOKS.

The company cook is a very useful individual, but unfortunately, too often he is not the ideal soldier, in fact he performs so little military duty that he is more cook than soldier, and, unless he is made the object of especial attention you will find him unclean in person, with untidy surroundings, improvident, wasteful and careless in preparation, cooking and serving of rations.

This arraignment may seem unduly severe, but my justification lies in the statement that fully half my difficulties in the enforcement of proper sanitary measures have arisen from the sins of omission and commission of cooks, teamsters and civilians in camp.

A matter too often overlooked or ignored is the personal cleanliness of the cook. He should be the cleanest man in camp, but except for the intervention of the medical officer, he is usually the dirtiest. He is generally garbed in a cast off uniform,

too old and dirty for other use, and under these circumstances, in the interest of uniformity, his person and cooking utensils correspond. The most salutary lesson I ever administered was to have a detail march a cook to a nearby stream and there perform ablutions entirely satisfactory to the officer in charge of the detail. Such an object lesson of enforced cleanliness has a wholesome effect upon the entire command. Insist upon clean cooks, clean utensils, clean cooking and clean service, with clean surroundings, and much is accomplished in the matter of camp sanitation.

CARE OF RATIONS.

Articles not of a perishable nature can readily be stored in the kitchen tent, but issues of fresh meat or fish must be especially protected to prevent waste, decomposition, or the institution of a feast or famine regimen. During our eight days tour of duty we have four issues of fresh beef and one of fresh fish. There is also a daily issue of ice. Part of the ice is used to preserve the food and the balance to cool the water for drinking purposes.

The simplest method of preserving perishable foods is the construction of a rough box, with a door front, covering a four foot pit, the bottom of which is covered to the depth of a foot with loose stones. Shelving within support the food and ice and the stones take care of the water from the melting ice. The best location for this is one corner of the kitchen tent, on the shady side farthest removed from the stove.

WATER SUPPLY.

This should be the purest obtainable, and every effort put forth to maintain it in such condition. Where the water is unwholesome the use of boiled water, infusions of coffee or tea, supplementing the effective process of distillation in use by the regular army, eliminates risk from that source.

The water supplied at the summer camp of the National Guard of Pennsylvania is always excellent, but the pipes conveying it to camp lie just below the surface of the ground, hence it is quite warm as it runs from the spigots. For drinking purposes, my recommendation is that each company provide a barrel set up

on end, about a foot above the ground, the head replaced by a close fitting top, hinged and locked at all times except when filling. There should be a spigot near the bottom. A drip well should be dug about three feet square, and the same depth, and filled in with loose stones. A whiskey barrel answers an excellent purpose.

The object in having the locked lid is to prevent dipping in the barrel, and if each man uses his own cup no danger of infection can exist. Especial emphasis is laid upon this form of water receptacle, and the value of this prophylactic measure was made apparent at our last camp, by the discovery in one regiment of a bad case of oral mucous patches.

The most suitable location for the water barrel is in one corner of the lower end of the mess tent. It should receive all the ice not needed for the preservation of perishable food.

POLICING.

Policing should be thorough, should extend from guard line to guard line, and should embrace quarters as well as streets. The detail should be sufficiently large, with a trustworthy non-commissioned officer in charge. All organic matters should be conveyed to the crematory and burned. Stones can be utilized to fill in gulleys, swampy places and drains.

Thoroughness in policing is an incentive to the men to preserve camp and quarters in good condition. Cooks, stable men and civilians will require more watching to prevent camp pollution.

MESS TENT.

The mess tent should be kept in a tidy condition at all times, and should be used for no other purpose but that for which it is intended. It should not be a lounging place, and, except when especially permitted men should not congregate there.

During suitable weather the side walls should be raised for entrance of air and sunshine.

If the floor is littered with scraps of food, and the ground made the receptacle for the sweetened dregs from the coffee cups, flies will simply swarm there.

TENT SANITATION.

The tent should have no flooring other than earth or boards. On porous soil with adequate drainage, no flooring is needed if proper ditching is done. Hay, straw, leaves, boughs of trees are very untidy, add but little to comfort and speedily become unsanitary. They effectually preclude the ventilation of the tent by raising the tent walls for the wind would spread the litter far and wide, and such a camp would be a sight to behold.

The simpler the furnishing the easier the task of housekeeping and the maintenance of the tent in a sanitary condition. If a cot is used at all, the only one that meets all requirements of durability, portability and comfort is the folding cot so much used at present. If the weather is severe it cannot be used without a light mattress, for the cold air on the under side makes sleeping impossible.

An important matter is the frequent, systematic ventilation of tent and contents. This is best accomplished by an order requiring every tent wall to be rolled at a certain hour in the morning (say 10 o'clock) weather permitting, to be obeyed religiously every day by every officer and man in camp in the absence of other orders for that particular day. Blankets and clothing should also receive an airing and sunning by spreading them on the tent roof and ropes as early in the day as possible. Tent walls should remain rolled until as late an hour in the afternoon as the weather and military duties permit.

Soil pollution of the tent floor and surroundings should be sedulously guarded against. Polluted earth should be replaced by fresh earth or heavily covered with wood ashes.

A urine can placed at the foot of each company street for use at night will go far toward preventing soil pollution, and when in place, severe punishment should be inflicted for violation of the order requiring its use.

PERSONAL CLEANLINESS.

In civil life, cleanliness ranks a little below Godliness. Were this order to obtain in military life I fear the average soldier would be a very dirty individual. I have often wished we

might have compulsory bathing at specified hours. As it is we must content ourselves with suggestion and admonition, except when we discover gross negligence in this particular.

It is not necessary to enumerate the long list of troubles that ensue where, through neglect or inability to use the proper measures, bodily cleanliness is not maintained. One man may infect a company, a regiment, an army. This is particularly true of vermin, itch and such affections. The discovery of crab lice upon one member of a company will cause that company to abandon its sink absolutely until the individual is treated, and the sink seat scrubbed with a solution of bichloride, rubbed with coal oil and burned off.

SHOWER BATHS.

To encourage cleanliness, provide all possible facilities for bathing. In some form shower baths have been in use in our summer camps for many years. The earliest I can remember consisted of a barrel elevated on a rude scaffolding that was surrounded with boards or canvass. A piece of rubber hose with a sprinkler connected with the bottom of the barrel completed the appliance, and bucket were used to fill the barrel.

For several years we have had a regimental shower bath, roughly built of boards, with board floor, large enough to allow three showering sprays and room to change the clothing. A pipe runs along the ceiling and from this the spray pipes descend. A valve regulates the force of the spray, and enables each bather to turn it off as he leaves the bath. The shower bath is greatly enjoyed, and well patronized. To be without it at the summer camp would be felt by our men to be a great deprivation.

CONCLUSIONS.

It is not enough to know what constitute the necessary measures to maintain a camp in proper hygienic condition. Most important is it to know how to enforce these measures, and bring about this condition, and I shall conclude with a brief description of the method I have found most efficacious.

In the division of duties, the junior medical officer is given charge of sanitary matters. He is to inspect the camp at least

Headquarters	Hospital	Band	Company A

	HEADQUARTERS	QUARTERS	MESS TENT	KITCHEN	RATIONS	WATER	SINKS	DRAIN
Headquarters								
Hospital								
Band								
Company A								
" B								
" C								
" D								
" E								
" F								
" G								
" H								
" I								
" K								
" L								
" M								

Station.....

.....
Surgeon.....N.G.P.
.....

three times each day, giving especial attention to quarters, mess tents, kitchens, rations, water supply, sinks and drains. At the conclusion of the morning inspection, also at any subsequent inspection that he may deem necessary, he reports in writing to me upon a printed form such as I here present. This enables me to see at a glance just what defects exist.

The officer of the day is supposed to be responsible for the condition of camp, but inasmuch as he is relieved every twenty-four hours, the established custom of reporting to him and looking for relief from that direction has not proved satisfactory, nor have I found company commanders any more certain, hence I deal directly with battalion commanders, call the attention of each of these officers to defects in his battalion, and request immediate remedy. Upon his failing to comply with the request, report of the defect is made to the regimental commander.

The work of the assistant surgeon is supplemented by frequent personal inspections, for eternal vigilance is the price of sanitation.

The enforcement of the foregoing measures will serve to maintain a camp in good condition for a long period of time. New sinks will be required, and all abandoned ones should be well filled and covered with earth before being entirely filled with excreta.

Should marked soil pollution be manifest, or contagious or infectious disease become prevalent, change of camp site is imperatively demanded.

To treat this subject exhaustively is not within the scope of this paper, but I trust this meagre treatment shall have conveyed a general idea, which, if acted upon, will accomplish something toward removing the occasion for the censure which the medical department is certain to receive when the victims of disease outnumber those of bullets. Sorrowing friends accept death in battle as the fortune of war, but death from disease carries the sting of possible incompetency on the part of the department of which service we are members.

THE UNITED STATES NAVAL MEDICAL SCHOOL

BY ROBERT A. MARMION, M.D.

MEDICAL DIRECTOR IN THE UNITED STATES NAVY;
PRESIDENT OF THE FACULTY.

IT was long ago conceded that the naval medical officer needed a broader education than he usually obtained at our medical schools; not that the schools could not impart it in special cases but because their curricula were, and are still, so arranged as to meet the demands of the large majority which are for a thorough grounding in the general principles of medical science. Thus, it is left to the individual to elaborate the special branch or branches which most attract him after graduation. It is no reproach, then, to medical education that its product is not prepared to instantly assume and accurately discharge all of the duties of a naval medical officer any more than to successfully take up any specialty. The naval medical man must, in point of fact, be a specialist in all specialties. Study his position on board ship, for instance, where he may be the only doctor and where the lives of the ship's company, it is no exaggeration to say, are in his keeping to such an extent that a lack of knowledge on his part, or an error of judgment, may have most baneful and wide-reaching results. He is, in the strongest sense, the custodian of the health of that community. He must be so well-trained in all that relates to preventive medicine that he can warn his commanding officer of approaching dangers to the ship's company and advise him as to the best course to be pursued and, further, he must be able to battle with epidemic diseases according to the principles of modern medical science which has now reached that stage where it can and does stamp as a crime an ignorance which, a few years ago, was condoned as an error of judgment. When afloat, the naval surgeon can not summon by telephone any number of specialists to aid him. He must, unaided, meet all of the

contingencies which may be encountered in a community ashore be they in the shape of epidemics, surgical cases of every description or sporadic infectious cases. He is an all-important, even essential, wheel in what has been named "a fighting machine;" I mean the modern ship of war. The appearance of an epidemic disease on board of her may as completely place her hors du combat at a critical moment as would an accurately aimed torpedo. There is no disease which may not at some time or other claim his attention. I say this advisedly and having in view the fact that our ships are frequently the asylum for women and children as



United States Naval Museum of Hygiene and Medical School.

well as for male refugees in ports where revolutions have caused them to flee for safety.

The responsibilities of our corps are by no means confined to ship-life. The surgeon of a yard is called upon to treat the families of all of those who are domiciled within its limits and, moreover, we have stations where the naval surgeon is not only the only medical attendant for all of those constituting the military family but for the local community as well. It will be seen, then, that the aspirant for appointment in our medical corps may not with impunity neglect any of the opportunities which his

medical school presents him. But he does. Of some medical subjects he absorbs only enough to enable him to qualify for his degree and in that condition, often, candidates for appointment in our service present themselves to our Examining Board. While many of this class fail we, with much hesitancy, pass others largely because of the necessities of the service. This has, for many years, been the case and constitutes one of the explanations of a need for further training. This further training—what it should be, where it should be imparted and every conceivable detail—has been studied by the members of our corps at various times, the consideration of the question sometimes reach-



The New Naval Hospital adjoining the Medical School.

ing an acute stage and again languishing so that, for years at a time, one scarcely heard of it. All was not confined to study or discussion, however. On the contrary, attempts were actually made whereby a few were enabled to pursue studies according to their own taste and it was hoped that this plan might eventually expand so as to evolve systematic instruction in groups. Attempts of this sort, however, were short-lived owing to the fact that the services of the officers could not be spared. The lack of funds was always a serious impediment. During the administration of Surgeon General Tryon, 1893, the "Department of Instruction" was organized at the U. S. Naval Laboratory in New York and bade fair to succeed although here, again the require-

ments of the service permitted of the attendance of only a few at a time, namely, during the first few months of their service. The outbreak of our war with Spain necessitated the abandonment of this work and the ordering away of all who were under instruction. The Department of Instruction was never revived.

In 1902 the present Surgeon General of the Navy drew attention anew to the subject and the Naval Medical School as it



A View in the Lecture Room.

now stands was evolved and opened for the instruction of naval medical officers on November 3rd of that year. The site chosen is, without doubt, one of the most beautiful in the District of Columbia, namely, in the buildings formerly occupied as the Naval Observatory. Extensive changes—additions and alterations—had to be made in order to adapt the space to the needs of the school, the result of which is that we can truthfully claim

that we have an institution thoroughly adapted to the work which a careful study of details has planned for it. Before exhibiting the scheme of instruction it might be well to say a few words with regard to the basic principles underlying it. Naturally, the first question which would be asked by anyone unfamiliar with the subject is "What are the special requirements of service in the medical corps of the U. S. Navy which the



The Library.

graduates of lay medical schools do not meet?" In the first place there are many who are deficient in Hygiene, Military Surgery, Ophthalmology, Practical Chemistry, Bacteriology and Military and Tropical Diseases. Those may be said to be the principal defects in their medical training as shown by them when they appear before our Board of Examiners. But there are other requirements, in my opinion, than those of a satisfac-

tory medical training, for the reason that the naval medical officer has other duties to perform than those of an exclusively medical nature. He is an essential component of a military fighting body and may find himself called upon to perform duties purely military as has happened in our service during the last decade. He should, therefore, receive instruction in certain portions of the tactics to meet such possibilities as those and, also, to enable him to properly play his part in peaceful military formations. I think it important, too, that every officer should be familiar with



A View of the Bacteriological Laboratory.

the signals in use in our service and for that reason our student-officers receive a thorough training in that direction. As the officers of our Hospital Corps they must be proficient in its drills and, therefore, instruction in physical drill and Hospital Corps drill according to the adopted manuals forms a prominent feature.

The efficiency of an officer is still further enhanced and his familiarity with his new life increased by a knowledge of certain details of ship-life, among them the use of the barometers and interpretation of their readings, the compass, ceremonies peculiar

to the service both ashore and afloat, etc., etc. Thus the graduate of this school can promptly amalgamate with those with whom he must spend his life under conditions so different from those with which he was acquainted before entering the service. Instruction in broad-sword exercise is, also, imparted by means of "single sticks." Of course the medical man is not supposed to bear arms and does not when contending with a civilized foe. But he may find himself battling with savages who are not con-



A View of the Chemical Laboratory.

trolled by the Articles of the Geneva Convention. Independently of that possibility, however, the exercise is of value for increasing the strength and freedom of the movements of the wrist-joint.

To summarize, then, the first hour of the morning assembly is devoted to what might be called in their effects physico-military athletics. The student-officers may be said, as a class, to have acquired all manner of vicious habits in their carriage and pose

SCHEDULE OF EXERCISES AND INSTRUCTIONS AT NAVAL MEDICAL SCHOOL, 1904-1905.

The class will report every day, national holidays excepted, in time to be ready for instructions to begin at nine o'clock A. M.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9.00-9.10 Physical Drill	9.00-9.10 Physical Drill	9.00-9.10 Physical Drill	9.00-9.10 Physical Drill	9.00-9.10 Physical Drill	9.00-9.10 Physical Drill
9.15-9.40 Signals, tactics, etc.	9.15-9.40 Signals, tactics, etc.	9.15-9.40 Signals, tactics, etc.	9.15-9.40 Signals, tactics, etc.	9.15-9.40 Signals, tactics, etc.	9.15-9.40 Signals, tactics, etc.
9.45-10.00 Hospital Corps Drill	9.45-10.00 Hospital Corps Drill	9.45-10.00 Hospital Corps Drill	9.45-10.00 Hospital Corps Drill	9.45-10.00 Hospital Corps Drill	9.45-10.00 Hospital Corps Drill
10.00-12.30 Section A Bacteriolo- gical Labo- ratory.	10.00-11.00 Both secs. Lecture Duties of Naval Med. Officers	10.00-12.30 Section A Bacteriolo- gical Labo- ratory	10.00-11.00 Both secs. Lecture Hygiene	10.00-12.30 Section A Bacteriolo- gical Labo- ratory	10.00-12.00 Both secs. Miscella- neous
Section B Chemical Laboratory	11.00-12.00 Military Surgery	Section B Chemical Laboratory	11.00-12.00 Bacteriology	Section B Chemical Laboratory	
LUNCH.					
1.00-3.30 Section A Chemical Laboratory	12.30-1.30 Both secs. Military Diseases	1.00-3.30 Section A Chemical Laboratory	1.00-2.00 Both secs. Miscellaneous	1.00-3.30 Section A Chemical Laboratory	12.30-3.00 Both secs. Laboratory
Section B Bacteriolo- gical Labo- ratory	1.30-2.30 Chemistry	Section B Bacteriolo- gical Labo- ratory	2.00-4.00 Ophthal- mology	Section B Bacteriolo- gical Labo- ratory	
3.30-4.30 Miscella- neous	2.30-3.30 Miscella- neous	3.30-4.30 Miscella- neous		3.30-4.30 Miscella- neous	3.00-4.30 Miscella- neous

NOTE.—Where the word "miscellaneous" appears in this "routine" it will be understood that the duties occupying that period are subject to variations: the class will receive due notice of their nature.

during the many years of student life which have directly preceded their coming to us. The effects of this carefully directed physical training, which I have insisted upon as the opening feature of each day's work, have been most gratifying in increasing the endurance of the student-officers and ensuring healthy organic action, while, coincidentally, improving their carriage and bearing.

Monday, Wednesday and Friday, from ten o'clock till half-past three, are devoted to practical work in the bacteriological and chemical laboratories, two consecutive hours and a half being spent in each. Thus the class will, at the end of the term, have received at least one hundred and fifty hours' laboratory instruction in each of these branches. This is exclusive of the laboratory work done in connection with the chairs of hygiene, tropical diseases and pathological chemistry, which will considerably increase the sum of hours spent in practical work.

Tuesday and Thursday, it will be seen, are devoted to lectures on the various medical subjects, the instruction, in each instance, covering an hour every week. That given under the head of "Duties of Naval Medical Officers" is a careful interpretation of all the "Navy Regulations" in general and of the instructions issued by the Bureau of Medicine and Surgery. The instruction given in Chemistry, Hygiene and Bacteriology calls for no explanation beyond the statement that it is eminently practical and adapted to the requirements of the naval service. The chair of Military and Tropical Diseases is one of the most important entering, as it does, into a close study of diseases not often satisfactorily taught in our medical schools. In connection with this course twelve lectures are given on Medical Zoology, by Dr. Charles W. Stiles and two by Dr. M. J. Rosenau on Immunity. The necessity for this study is shown by the fact that in England schools have been established exclusively for this purpose.

The chair of Military Surgery imparts instruction in theoretical and practical x-ray work and light therapy in general, in addition to the instruction naturally belonging to that chair including work on the cadaver.

The course in Ophthalmology embraces the anatomy of the eye, refraction, instrumental diagnosis of diseases of the eye, and the operations practiced on the globe. Free use is made of refracting apparatus in illustrating the lectures on all subjects where that method of teaching is appropriate.

A series of lectures is given by Dr. W. N. Cogan of this city on "dental emergencies," its object being to so instruct the student-officers that they may be able to give palliative treatment, at least, and relieve suffering until the patient can secure the services of a regular dentist.

The Faculty of the Naval Medical School and its auxiliary instructors are as follows:

FACULTY OF THE NAVAL MEDICAL SCHOOL,—1904-1905.

NAME.	SUBJECTS TAUGHT.
Medical Director R. A. MARMION, U.S. Navy,	<i>President of the Faculty.</i>
Medical Director JOHN C. BOYD, U.S. Navy,	<i>Duties of Naval Medical Officers.</i>
Medical Inspector P. A. LOVERING, U.S.N.,	<i>Military Medicine and Tropical Diseases.</i>
Medical Inspector H. G. BEYER, U.S. Navy,	<i>Naval Hygiene.</i>
Surgeon CHARLES F. STOKES, U.S. Navy,	<i>Military and Operative Surgery.</i>
Surgeon EDWARD R. STITT, U.S. Navy, ,	<i>Bacteriology and Chemistry.</i>
P. A. Surgeon T. D. MYERS, U.S.N. (retired),	<i>Ophthalmology.</i>
Lieutenant D. L. WILSON, U.S.N. (retired),	<i>Physical drill, Signals, Tactics, Hospital Corps drill, etc.</i>
P. A. Surgeon A. W. BALCH, U.S. Navy,	<i>Pathological Chemistry.</i>
Mr. E. P. HANNA, Solicitor of the Navy Dept.	<i>Naval Law.</i>
Pharmacist E. R. NOYES, U.S. Navy,	<i>Chemistry.</i>

When the new naval hospital now being constructed in the rear of the medical school is completed clinical instruction will be added to the present course.

The periods marked "miscellaneous" are utilized for lectures by distinguished specialists from civil life who are not members of the faculty.

One of the earliest non-medical duties which a naval medical officer is called upon to perform is as a member of courts-martial and to equip him for that service a weekly lecture on Naval Law is given by Mr. E. P. Hanna, Solicitor of the Navy Department. These lectures are not, however, confined to the subject of courts-martial.

The student-officers are regularly examined by the various instructors and at the close of the school term a written examination is held on all branches that have been lectured upon. To



Faculty of the Naval Medical School, 1905

Reading from left to right the officers are: Medical Director J. C. Boyd, Lieut D. L. Wilson, P. A. Surgeon A. W. Balch, Surgeon Charles F. Stokes, Medical Inspector Henry G. Beyer, Medical Inspector P. A. Lovering, Surgeon E. R. Stitt, and Medical Director Robert A. Marmion.

all who attain a general average of 75 per cent. or over, a certificate of graduation is awarded.

It will be observed that, with one exception, all belong to the Navy. The school session begins on the first of October and continues for about six months. At present it receives only those who have been examined and commissioned in the regular naval medical corps although it may later be open to members of the

naval militia. When service conditions shall permit, any member of our corps desiring instruction in special branches may be admitted to the school. Those who now constitute the classes are all of the Assistant Surgeons who have been appointed during the twelve months preceding the opening of the school term. The



The Naval Medical School, Class of 1905.

H. A. May, W. N. McDonnell, R. B. Chapman, F. E. Porter, R. G. Helner, O. J. Mink, W. D. Owens, W. A. Angwin, G. L. Wickes, J. L. Belknap, D. C. Cather, H. W. Cole, H. W. Smith, R. E. Stoops, N. T. McLean, C. B. Clifford, W. J. Zalesky, C. T. Grayson, E. A. Vickery, L. H. Wheeler, W. G. Farwell, C. E. Strite, W. F. Hull.

first year's (1902) class contained twelve members, last year's numbered thirty-one and the class at present under instruction has twenty-three members.



MILITARY HYGIENE, ITS THEORETICAL AND PRACTICAL STUDY IN THE REGULAR ARMY AND MILITIA FORCES.

By LIEUTENANT ROBERT SMART,
ASSISTANT SURGEON IN THE UNITED STATES ARMY.

IN protracted wars armies are incapacitated much more from disease than from the bullets of the enemy. This fact has been demonstrated time and again. In 1828 during the Turco-Russian war as many as 80,000 men died of disease and only 20,000 from wounds; a French army surgeon states that during six months of the Crimean war the Allied forces lost from disease 50,000 men and from wounds but 2,000. During our own Civil war, the Union forces lost a total of slightly over 300,000 soldiers of whom only 95,000 were killed in battle or died subsequently of their wounds and the Confederate loss in the same struggle amounted to about 200,000 three-fourths of whom died of disease. During the five months fighting of the Spanish-American war 2,565 men died of disease against 350 killed or dying of wounds.

The only exception to be found to this fact is the Franco-German war of 1870, in which, the German loss in battle was 33 per thousand of strength while their loss from disease was a little over one-half of that figure. This was probably due to the decisiveness and activity of the campaign and the seasonable period of the year in which the fighting took place together with the advanced sanitary precautions taken.

Three factors tend to approximate these figures of death from disease and from wounds in the wars of to-day: 1. Expense; 2. The effectiveness of modern arms; and 3. The advance in medicine.

EDITOR'S NOTE—This paper was written by Lieutenant Smart in Manila, P. I. Since it was sent several of the recommendations made in it have in General Order No. 115 War Department June 27, 1904 received the recognition they merit.

A medical officer has been placed upon the Faculty at West Point and at the Cavalry, Infantry and Artillery Schools and Hygiene is now a part of the curricula of all these Schools as well as the Garrison School for officers.

The first two of these increase the death rate caused by actual fighting by making necessary short aggressive campaigns in which longer range and increased rapidity of fire are conspicuous. By the third, decreased mortality is insured by our advanced knowledge of the causation, manner of communication and methods of control of diseases heretofore causing enormous death rates in contending armies.

This great mortality, fortunately is due to what are termed preventable diseases. Typhoid fever is the most important of this class. Occasional outbreaks occur in troops in barracks the cause being usually found to be due to an impure water supply; but with armies in actual campaign, epidemics of this disease are to be expected. The crowding together and intimate relationship existing in tent life; the susceptible age of the majority of soldiers; the impossibility of absolute hygienic conditions pertaining to the sinks; the lack of knowledge and carelessness of the soldier; the danger in ambulatory cases and the long period of incubation all tend to the propagation of this disease in camp life.

During the Spanish-American war 20,000 cases occurred in 1898 beginning to make their appearance in some places three weeks after the regiments went into camp. The Investigating Committee on typhoid fever during this war reported that the admissions for this disease during the summer of 1898 amounted to 192 per thousand. Contrast this with the usual 5.5 per thousand in time of peace and the effects of camp life may be plainly seen. Eighty per cent. of the deaths from all diseases occurring amongst the American soldiers in this war was due to this cause.

Dysentery is also a most fruitful factor in disabling armies in the field. Instances are common in history in which large armies have lost one-fourth their strength from diarrheal and dysenteric disease. The conditions prevailing in the concentration of troops in camp are as favorable to the propagation of this disease as for typhoid; the average admission rate during the Civil War was 120.88 per thousand of strength and the death rate 3.67 while in times of peace this rate is diminished to about 16 per thousand of strength with a death rate of 0.73.

The third great enemy of armies in actual campaign is malarial fevers. What these fevers lack in death rate as compared with the other two they make up in their power to incapacitate. During the Civil War over 1,300,000 cases were reported with a mortality of nearly 4 per thousand of strength. These fevers are classed amongst the preventable diseases though, through the method of infection by means of the mosquito, they cannot be prevented to the same extent as typhoid or dysentery.

It is very probable that the infection may be taken into the system by drinking water as first pointed out by the late General Smart, later by Laveran and Manson and as instanced by Munson in the epidemics in our own army at Forts Brown and Ringgold, so that, by proper care of the water supply of our armies in camp these diseases may also be controlled.

Since we recognize that disease depletes the ranks of fighting armies to a much greater extent than does the enemy's shot and that of the diseases producing this terrible havoc over eighty per cent are caused by typhoid fever, dysentery and malarial fevers, all so-called preventable diseases, it demonstrates how profitable it is to us to spend much of our time in perfecting the hygienic conditions of our army in the field,—a man sick with disease being as great an impediment to the fighting force as a man wounded.

In time of war the small standing army of the United States can form only a nucleus of the force relied upon to do the fighting; its ranks must be greatly augmented by volunteer or militia troops, which, though a large number may have been under arms and drilled before enlistment, are absolutely without any idea of camp hygiene. Nor are their officers any better in this respect. The company, battalion or regimental drills in their armories give them no idea of regular camp hygiene and the regimental surgeon entering the service with them whose duties are for the first time to advise the commanding officer of a suitable camping site, water supply, location of sinks and disposal of sewage, etc., finds himself wanting in this knowledge.

According to Army Regulations it is the duty of surgeons to advise, and the commanding officers, to carry out the recom-

mentations made to them by the medical officers; but they cannot do this in a satisfactory manner without some elementary knowledge of hygiene.

If we are to have sanitary camps it is therefore incumbent upon all line officers to have some knowledge of military hygiene, sufficient at least, to intelligently carry out the recommendations of the medical officers under their command.

If then, in a military emergency, it is necessary to have *all* officers conversant with the proper hygiene of camp and field life, it is of particular importance that the officers of the regular service be competent to practically instruct the large body of volunteer or militia officers who will be serving with them, because in large camps by the carelessness, negligence or lack of knowledge on the part of one company or regiment, foci of infection may be established whereby eventually disease will gain access to the camps of those where every precaution has been taken against its invasion.

It is therefore necessary that our regular medical officers be thoroughly equipped to cope with all sanitary problems so that they may instruct the line officer in his duties regarding sanitation, so that when the latter may be serving with volunteers or militia he may be able to impart his knowledge to them.

Recently Surgeon General O'Reilly has modified the conditions for entrance into the Medical Department of the Army so that the candidate after passing a satisfactory examination on professional subjects, is given a contract and ordered to the Army Medical School for a course of study, after which, if his work there has been satisfactory as evidenced by examination at the end of the course, he is commissioned as a first lieutenant in the Army.

Ten years ago the Medical Department established this post-graduate school because the examinations showed that candidates for the Corps though well versed in the ordinary branches of medicine and surgery lacked a sufficient knowledge of sanitary science to make them thoroughly efficient military surgeons.

The practicing physician has little or nothing to do with sanitation, for while he applies his knowledge to the prevention of

sickness, it is in a more or less limited sphere,—sanitation in its broader sense, amongst civilians, being in the hands of municipal boards of health. But in the army this is different; every medical officer besides being physician and surgeon, must be health officer for the command with which he is attached. It is for this reason that at the Army Medical School special importance is given to sanitary chemistry, bacteriology and hygiene.

In sanitary chemistry the young officer is made familiar by practical study in a well appointed laboratory with the gravimetric and volumetric methods of analysis; particular attention is paid to the analysis of food stuffs for adulteration and he is graduated with a practical knowledge of the sanitary chemical examination of potable waters.

In bacteriology he is given a sufficient knowledge by actual practice, to be competent to undertake all the necessary bacteriological diagnoses required in the wards of large hospitals and to pass satisfactory judgment upon samples of water supplies from the standpoint of the bacteriologist.

Both of these practical courses are supplemented by lectures on hygiene in which attention is directed to the physical examination and development of the recruit; the prevalence of sickness amongst soldiers, the cause of these diseases and their prevention; the hygienic qualities of different fabrics suitable for clothing in hot and cold climates; the chemical and physiological properties of different food stuffs, how they are varied and their calorific value computed to form the army ration; the selection of sites for permanent and temporary camps; the construction of camps; the ventilation, heating and lighting of permanent quarters and of hospitals; the various methods of the disposal of sewage in posts or camps of different size and permanency and the method of computing and the importance of vital statistics.

With this theoretical knowledge and the practical experience taught him by his older confreres, the young lieutenant goes upon his duties not only well equipped to cope with the daily sanitary questions which will confront him but with sufficient information to enable him to instruct the line officers with whom he

may be serving in such elementary principles of sanitary science as may be requisite for the intelligent performance of their duty.

To properly instruct the line officer in sanitary matters so that his men may be kept in the most healthful condition we should begin with the Cadet at West Point.

He is taught there that the success of his army depends upon the number of trained and disciplined men that compose it, but not that its size is directly proportionate to the vigilance in sanitary matters that he exercises as its commander. He is taught to form an efficient army from raw recruits, but not how to maintain its efficiency from its most dreaded enemy—disease. He is taught how, in the face of the enemy, to manoeuvre his command so as to do the most injury and receive the least harm, but not how to protect his men when no enemy is in sight. These points should be taught the Cadet. He should know that in time of war in an army of 20,000 men 1,000 die who if proper sanitary precautions were taken would live to increase its efficiency.

At West Point a medical officer should be detailed as Instructor in Military Hygiene* and the course of study on this subject given to the graduating class should be as thorough and pursued with as much exactitude as is done in the other branches of the curriculum.

Every officer's greatest responsibility is the care of his men. His power to properly care for them is greatly increased by the knowledge of the harmful influences which may surround them in actual campaigning.

The course for the Cadet should therefore begin with the recruit. The cadets should be advised how to properly systematize drill and athletic exercise so as to do the greatest good to the greatest number; how best to make all-round athletes of the recruits rather than stars in one particular line. They should study how to protect their men, when in the field, from lung diseases, rheumatism and diarrhea on account of cold and moisture; from exhaustion and sunstroke caused by heat; the importance of cleanliness and the diseases due to the lack of it; the diseases

*Such is now the case.

from errors of diet—over eating, bolting of food—deficient food and scurvy; how to eat and drink on the march; how to protect the water supply from contamination and how to purify it; how to select, build and maintain sanitary camps and the results of negligence or carelessness in this regard; the disposal of garbage and sewage in camps and camp police; the precautions to be taken to prevent the invasion of infectious diseases in camp and once infected how to minimize the chances of its spread to other camps.

With clear practical ideas on these subjects the cadets after graduation will be able to practically instruct the men of their commands so that they may appreciate and obey orders given regarding the cleanliness of their camp or themselves. When, through the medium of the line officer, the men of a command gain these ideas, disease, death and disability will be diminished and the men of that command kept at their highest point of efficiency—the military point to be desired.

The increase of the army in 1901 from 25,000 men to its present size necessitated a corresponding increase in its commissioned personnel; to meet this, men were selected from the volunteer or militia forces; from the ranks of the regular service and from civil life. Few of these recently appointed officers had the benefits of the four years hard study, strict discipline and control of men which characterize the West Point graduate and many indeed were young men recent graduates of college who never had any previous knowledge of military life.

For some years the Infantry, Cavalry and Artillery have had postgraduate schools at Forts Leavenworth and Riley, and Fort-tress Monroe for the purpose of teaching the more recent developments and advances made in their separate branches of the service.

These schools are now used for the purpose of sending the recent appointee for general instruction, as well as for special study in the work of his corps. To these officers specially should instruction in military hygiene be given because the majority of them are less capable, from their inexperience in military matters, to care for the men under their command than any other

class of officers in the army, and in event of an emergency it would be upon these very men that the volunteer officers of the newly recruited forces would have to rely for their instruction in sanitation.

For the purpose of instruction of this class, at each of the schools above mentioned, a course of study should be given as outlined for the cadet at West Point. Examinations should be held at the end of such course and failure to make a passing mark in this subject should be dealt with as is customary in the other branches taught at the school.

We are living today in an era of rapid advancement and the officer who, having diligently studied to pass his examinations to enter the army, sits down to enjoy a lifetime of comparative ease awakes sooner or later to the fact that, in the army as in other professions, it is necessary to keep abreast of the times, to do which constant study is necessary.

In few branches of science has this increase of knowledge been so rapid as in preventive medicine; and this newly acquired information has been of such a practical character as to easily recommend itself even to the laymen.

At all army posts, schools have been instituted the object of which is to keep the line officer in touch with the progress of modern military affairs. At them are discussed problems of strategic or military importance. But as pointed out at the beginning of this paper no point could be of more military import than the subject of military hygiene yet singularly enough it is never broached. A big step in advance will be made when at these schools a course of military hygiene shall be outlined by the post surgeon giving the subjects to be discussed during the term of study and on the mornings of the week when hygiene is to be the subject for study all the medical officers of the post shall be required to be present and take part in the discussion with the other officers.

The study of camp sanitation by the individual officers of the state troops cannot be too strongly urged. It is these troops that in time of war will compose the largest part of the fighting forces and on account of their lack of discipline, as compared

with the regular soldier, there is the greater need of sanitary precaution amongst them. The better the discipline the better will be the health of the soldiers composing a command. But no matter how strict may be the discipline of a large body of troops if there is lacking a knowledge of sanitation on the part of the officers, disease will crop out and unless quickly checked will decimate the command. So while we may look to the state line officers to help us in the sanitary arrangement and management of camps by the discipline and proper control of their men, we ourselves as state military surgeons, must be competent to check disease by our sanitary knowledge once it has gained access to the camp.

"In time of peace prepare for war," is as applicable to the medical department regarding sanitation as to the nation in the preparation of its defences.

To wait until the mobilization of troops in camps of concentration to obtain this important knowledge is to wait too long as was most unfortunately instanced in our camps in 1898. The state medical officer then finds his time taken up with routine work that is entirely new to him and he has no time to instruct the officers of his regiment in their duties as sanitarians even had he the requisite knowledge, nor would he find they had the time to listen to him; they are then too busily engaged preparing their men to meet the enemy to waste time with learning how to save themselves from destruction by disease.

The same rule applies to the state troops as does to the regular service, that to obtain the best results, the medical officers must first become familiar with the subject of military hygiene and then they must teach the line officers to instruct their men. It is unfortunate that practically this cannot be carried out to the same extent in the militia forces as in the army, but still with the means at our command a great deal may be done to better the conditions now prevailing.

The members of this Association should wield their influence to urge upon their state the yearly appropriation of a sufficient sum of money to send one representative to attend the courses of the Army Medical School. The officers thus sent should be

selected from those residing in the larger cities so that after their graduation they may be in a position to impart the knowledge acquired at the school to the other members of the medical corps in that city.

If this could be accomplished in but one state it would be of enormous benefit as before long, not to be outdone in taking advantage of the opportunities offered by the War Department in this course, other states would follow the lead.

While it is earnestly to be hoped that shortly we may see the fulfillment of such a plan, by some, if not all of the states, there is still much that may be done by systematic study by the medical officers of the states themselves.

1. The Surgeon General of each state should appoint a certain day each month from November to May for a meeting of the military surgeons in all the cities, in which there are a sufficient number to discuss problems of camp sanitation. These meetings should be presided over by the senior officer present, who should report after the last meeting to the Surgeon General on the attendance and advancement made during the course. The subjects for discussion should be outlined by the Surgeon General.

2. By order of the Commanding General of each state each regimental surgeon should once a month be required to meet the officers of his regiment for the purpose of explaining to them the importance of an elementary knowledge on their part of military hygiene and in a simple and popular manner instruct them in the care of their men and camps.

3. The Surgeon General of the Army should make it a part of the duties of the attending surgeon in each of the large cities of the United States to give bi-monthly lectures to the military surgeons of that city on military hygiene and the duties of medical officers in time of war; each lecture should be followed by a discussion by the officers present. This would have the effect of not only promoting a knowledge of military matters from the standpoint of the regular officer but also give us a more intimate acquaintance with our brother officers in the state forces.

With these methods of disseminating a theoretical knowledge of military hygiene amongst the officers of the state troops, much

will be gained in our fight against disease when it becomes necessary for us to test it in practice.

Relative to the practice of military hygiene in armies, two things are of importance: 1, to recruit an able bodied and healthy army and then having done this; 2, retain them in this condition. Practice in the first of these points is equally favorable to both the state and regular medical officers because in both organizations there is a constant change in the enlisted force and in both physical examinations for enlistment are required.

The objects of the physical examination of recruits is twofold,—to protect the applicant and to protect the government. The medical officer is to select men for the military service who are strong able bodied and in whom the exposure and hardships incident to a soldier's life will produce the least harmful effects; he is to prevent the enlistment of those with physical defects, however slight, which may unfit them for actual service making them impediments to an army in time of war and an expense to the government in time of peace.

The physical examination of recruits is of extreme importance in the regular army and should be equally so in the state forces. The pension list even today undoubtedly bears the names of many men enlisted during the Civil War whose disability occurred prior to their enlistment and was overlooked by hasty or careless physical examination.

The maintenance of an army in health is accomplished by developing the physique and endurance of the individual units composing it and by decreasing the harmful influences to which it may be exposed. The first of these factors is of much more importance than is generally believed. The army of the United States is the last of the great armies of the world to recognize the importance of physical drill to its soldiers. In this department of military hygiene we are only now beginning what the armies of Germany, England, France and Norway and Sweden have been engaged at for the past twenty years. Exercise and athletic competitions of all kinds should be encouraged in the army but only under medical supervision. The Post and Departmental "Field Day" recently inaugurated is a step in the

right direction although there is much danger of permanent harm being done in competitions of this character in men improperly trained; also that company and regimental rivalry in these games will cause training for special events which leads to the development of one part of the body at the expense of all other parts; this is not to be desired as a first class athlete of this character has by no means the stamina or endurance possessed by even mediocre all-round athletes. Very little good will be accomplished in the physical drill of our soldiers until it is graded, systematized and carried out under competent supervision.

The second factor,—i. e. the elimination of the harmful influences surrounding troops in the field,—can, in times of peace, only be practically demonstrated by placing commands under conditions similar to which they would be in actual warfare.

In the regular service small commands should be ordered from their posts one company at a time for the purpose of camping in the neighborhood for a week or ten days; a medical officer should accompany such commands and take advantage of this time to demonstrate the salient points of camp hygiene to the company officers. Long marches and forced marches should be made the medical officer pointing out when and how the men should rest in each case. On the march he should direct attention to how, when and what the men eat and drink; how they sleep, and how they should sleep; their personal cleanliness or the lack of it, etc. In camp he should superintend the camp police, cooking, disposal of waste and sewage, informing the officers of their hygienic mistakes, the probable results which would accrue from them if not corrected and how to correct them.

The benefit derived from this plan would be of inestimable value because by taking small commands, more time may be given in practical demonstration of hygienic principles to each command and there is less danger from disease; for as the strength of a command in the field is increased so is the probability of camp infection. If, during the summer months, troops were sent out in this manner sufficient practical hygienic knowledge would be gained by the younger officers to enable them to take

good care of their men and company camps when called later in the season for department manoeuvres. Their company camps then should be the models to which the militia soldiers in camp with them should strive to attain.

The attention of the regular surgeons could then be directed to assisting the militia organizations to obtain camps of similar excellence.

In conclusion while it may be held that it is the duty of the military surgeon to protect the soldier from disease and that in this paper much stress is laid upon the knowledge of hygiene necessary for the line officer it must be granted that the ideal camp will be pitched when every private soldier is imbued with the elementary principles to be taken in the care of his health and against the spread of disease and that this knowledge can only be diffused amongst them through the medium of the line officers.

Let us then use every effort in our power to bring about this union of forces. We know as sanitarians how necessary is this united effort in case of hostilities and we have all seen from the lack of it the direful results produced in our camps in 1898. Surely all will agree that we could combine to fight no more destructive foe to our forces in the field than Preventive Camp Diseases.

THE FIRST DRESSING IN MANCHURIA.

AS was to be expected the experiences in the East have emphasized the value of the first dressing packet. Colonel Wredin, Chief Surgeon in Manchuria, states that their use in the Russian service is universal and emphasizes the advantage of having them composed of antiseptic,—not alone aseptic,—material, since disinfection of hands and wounds is impossible on the battlefield. He notes also the advantage of the antiseptic in preventing the deposition of larvae by the omnipresent fly. The saturation of the dressing materials with a five to ten per cent solution of carbolic acid commends itself strongly to his judgment, since it is most offensive to flies. He uses wadding saturated with tar for profusely suppurating injuries.

FIELD MEDICAL ORGANIZATION.*

By LIEUTENANT HARRY L. GILCHRIST.

ASSISTANT SURGEON IN THE UNITED STATES ARMY; INSTRUCTOR
IN FIELD WORK IN THE ARMY MEDICAL SCHOOL.

THE organization of the Medical Establishments in time of war is one of the problems which confront the medical officer, and no little engineering skill and technical ability is required in making the various hospitals and camps hygienic and sanitary receptacles for the sick and wounded. Many details which are ordinarily considered of minor importance in time of peace, are immense factors in time of war, therefore, it is essential that a diversified knowledge of hygienic and sanitary principles be acquired, together with a proper understanding of terrain and elements, in order that the great number who need medical and surgical attention may be handled with the utmost dispatch, and least friction. The subject is one which requires the most careful study, and keen appreciation of detail, and to make it more clearly, a set of blueprints have been prepared to demonstrate the constructive technique.

The first illustration is that of a Regimental Field Hospital which is designed for the protection and care of the sick and wounded of a command while on the march or in the field. It is not intended for the care of serious cases which are liable to be prolonged, as such cases are provided for in the Brigade Hospital, to which they are transferred as speedily as possible, but while its equipment is limited, it embodies all the features neces-

*Extracts from a lecture on the Constructing Plans of a Regimental Hospital, Regulation Field Hospital, and an Ambulance Company Camp. Illustrated with Maps showing the position of medical organizations in the field,—delivered at the Army Medical School, Washington, D.C., during the session of 1904, and published by permission of the Surgeon General of the Army.

sary to the well being of those whom it is designed to shelter. The tentage of this hospital consists of:

- 3 Hospital tents; 2 to be used as wards, and one as a dispensary and store tent.
- 5 Common tents; 4 for the Hospital Corps, and 1 for the cook.

The camp should be laid out and based upon a fixed center line and ditched before the erection of the tents. A convenient arrangement for a Winter Regimental Hospital in a not too rigorous climate, combining the use of both tents and a central hut, is recommended. In this plan, the hospital tents are pitched in groups of three, radiating from a central wooden building having a length and width of fifteen feet, and the height of a hospital tent, with sloping roof toward the free side. The central frame structure can be used for stores and office, and may also afford a good lounging place for the patients. This system not only provides a warm, comfortable place for the men, but is also a source of great saving in stores and fuel.

The next illustration is of a Regulation Field Hospital the latest Field Regulations allowing four of these hospitals to a Division. This hospital is an independent unit and provides temporary or permanent shelter for the sick and wounded on the march and in camp. The Regimental Hospitals are considered as sections of the Field Hospital, with which they are consolidated whenever conditions render it advisable. Ordinarily, this hospital should be pitched in accordance with the approved plan, always working from the center and base lines and ditching before the units are erected, but exigencies frequently occur which require modifications of the plan, in which event, the condition must be met and acted upon accordingly. The Field Hospital is pitched in six (Regimental) sections, the center section being always pitched first, and the side sections added as necessity demands. The tentage is as follows:

- 17 Regulation hospital tents divided into six sections of three tents each, used as wards.
- 1 Hospital tent used as a dispensary.
- 1 Hospital tent used as an office.
- 1 Hospital tent used as a store tent.
- 1 Tent fly used as company kitchen.



CONSTRUCTING PLAN OF A
REGIMENTAL HOSPITAL
FOR OFFICERS OF THE MEDICAL DEPARTMENT
OF THE U.S. ARMY AND NATIONAL GUARD

ARMY MEDICAL SCHOOL
WASHINGTON, D.C.

DESIGNED BY THE ARCHITECTS OF THE ARMY MEDICAL SCHOOL
WASHINGTON, D.C.



PLAN OF HOSPITAL BUILDING
FOR 100 BEDS

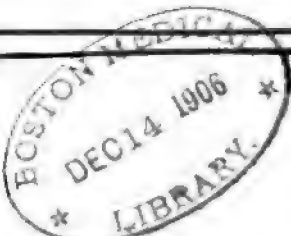


PLAN OF REGIMENTAL HOSPITAL
FOR 100 BEDS

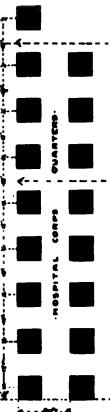
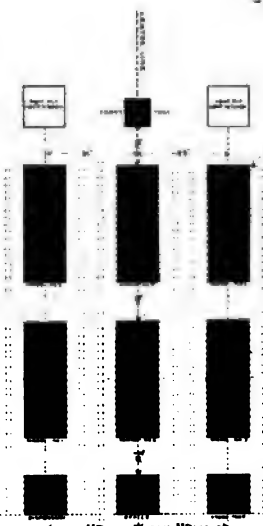
PLAN OF REGIMENTAL HOSPITAL
FOR 100 BEDS

CONSTRUCTING PLAN OF A
REGIMENTAL FIELD HOSPITAL
FOR MEDICAL OFFICERS OF THE ARMY AND NATIONAL GUARD
AS PRESENTED BY THE
ARMY MEDICAL SCHOOL
WASHINGTON, D.C.

DESIGNED BY THE ARCHITECTS OF THE ARMY MEDICAL SCHOOL
WASHINGTON, D.C.



• **REMARKS FOR THE ARCHITECT:**
• This is a plan of a hospital building for 100 beds. It is designed for use as a field hospital. The plan is based on the assumption that the hospital will be used for the treatment of medical officers of the Army and National Guard. The plan is based on the assumption that the hospital will be used for the treatment of medical officers of the Army and National Guard. The plan is based on the assumption that the hospital will be used for the treatment of medical officers of the Army and National Guard.



USE IN TO SECRET LINE

USE IN TO COMPANY LINE

SCALE 1/4" = 10'

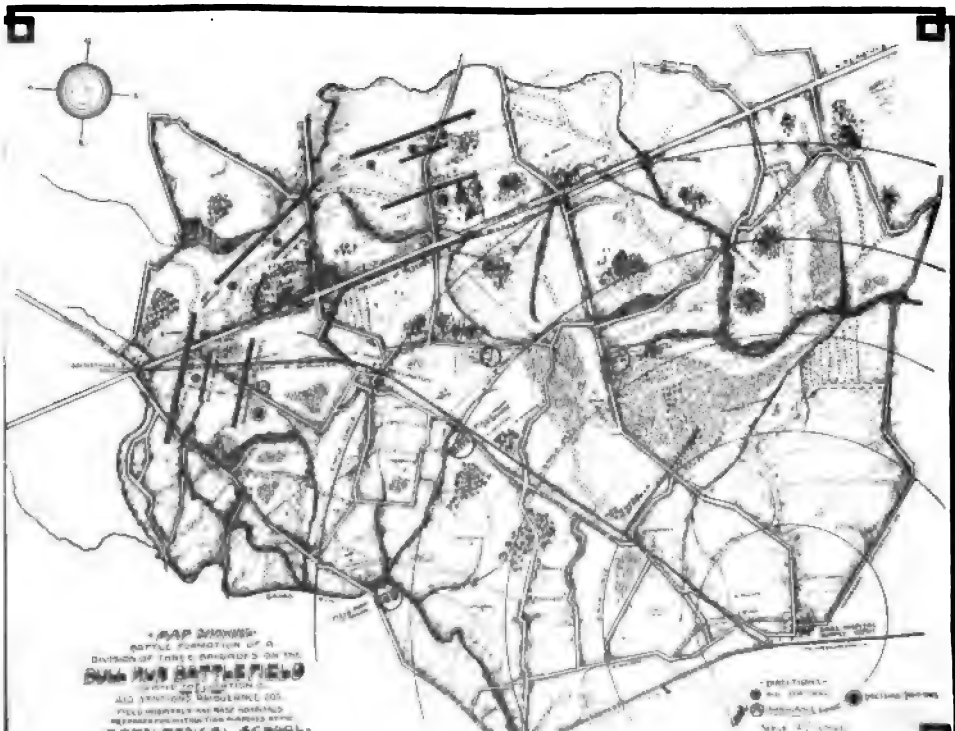
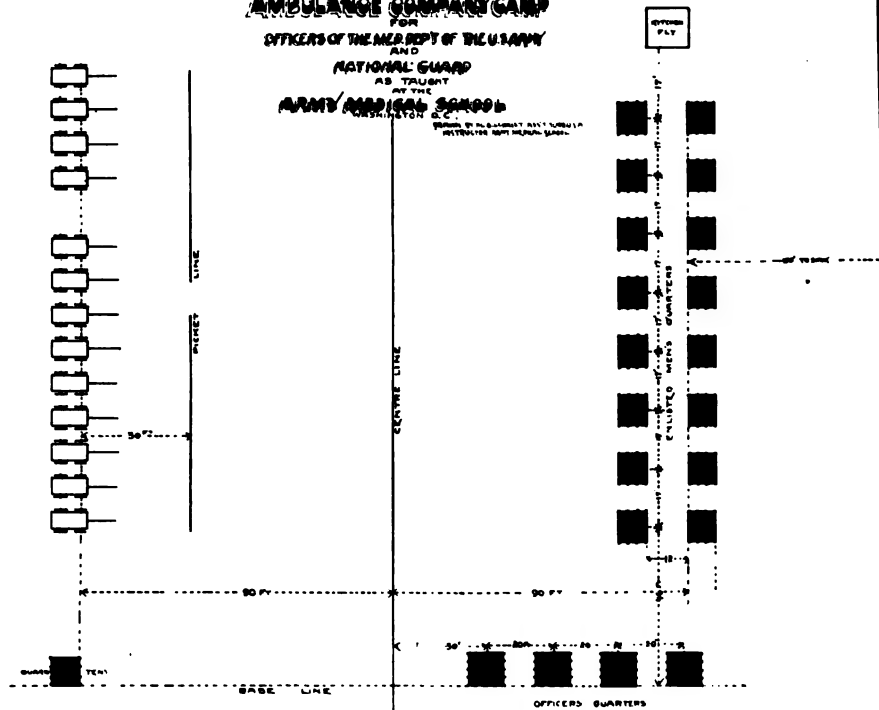
- 1 Tent fly used as hospital kitchen.
- 17 Common tents for Hospital Corps.
- 1 Common tent for cook.
- 4 Wall tents for officers.

The third illustration is of an Ambulance Company Camp. The number of ambulances allowed by Regulations at present is one to every 400 men. The new Field Regulations allow ten ambulances to each "Ambulance Organization," and the "Ambulance Company" itself is classified and considered as a section of the Regulation Field Hospital. The equipment of the "Ambulance Company" consists of:

- 10 Ambulances.
- 4 Army wagons.
- 1 picket line about 30 feet in front of the vehicles for transportation.
- 4 Tents for medical officers.
- 16 Tents for the Hospital Corps.
- 1 Tent for a guard tent.
- 1 Kitchen fly.

The position of medical organizations in the field is the subject of the next illustration, and is demonstrated by the map of the Battlefield of Bull Run, made famous during the Civil War. The map is a reproduction of the Engineers' Survey, and gives a fairly accurate outline of the general topography of the country. The disposition of the surgical help will be better appreciated if the distribution of the troops when approaching the enemy and preparing for battle is first considered. In this case a division of 18,000 men divided into three brigades will constitute the troops engaged in battle. They are formed in two lines; the first line consisting of firing lines support, and regimental reserves, the support being some three hundred yards, and the reserves 900 yards behind the firing lines. The second line, consisting of a brigade of reserves, is about one mile behind the firing line, the right resting on the Warrenton Pike behind the 3rd brigade; and the left on the railroad behind the 1st brigade. Under the new Field Service Regulations the lines of medical assistance would be:

AMBULANCE COMPANY/CAMP
FOR
OFFICERS OF THE MEDICAL DEPT OF THE US ARMY
AND
NATIONAL GUARD
AS TAUGHT
AT THE
ARMY MEDICAL SCHOOL



At the front:

- 1st. On the firing line.
- 2nd. At the Regimental Aid Stations.
- 3rd. At the dressing stations.
- 4th. At the Ambulance Stations.
- 5th. At the Field Hospitals.

These lines constituting the service at the front and characterized by their mobility, following the Army, and always in readiness on every battlefield, but while the organizations may be clearly laid down in Regulations, it will be found that in actual practice many unexpected events of a campaign will greatly interfere with perfect operation.

Next to be considered is the Service of the Rear which would consist of the stationary and Base Hospital, located in this instance at Manassas, a town situated on the railroad about six miles to the rear of the battle, and to which all patients not returned to duty would be sent. 2nd. Rest stations established in available farm houses, at intervals along the road of communication, designated during the day by the Red Cross Flag and at night by a red lantern. 3rd. Casual camps and convalescent camps established at Manassas, or somewhere along the line of the railroad. 4th. The Medical Supply Depot for replenishing the hospital and surgical stores, located at Manassas.

The First Aid on the firing line would be applied by either the wounded man himself; a nearby comrade or a medical officer or Hospital Corps man.

The "Regimental Aid Stations" are indicated on the map by circles with crosses; they are scattered along immediately behind the regiments on the firing line, and are supposed to be placed in as secluded spots as possible which are easy of access. They are generally equipped with a small supply of dressings, medical and hospital stores, etc., in charge of a Regimental Medical Officer.

The Dressing Stations are indicated by small circles surrounding block centers; these are places where the wounded are assembled from the Regimental Aid Stations as soon as practicable after the battle, for shelter and first aid and with a view to

their final removal from the field to the hospitals in the rear. The location of Dressing Stations depends on the terrain and circumstances of the fight; the hypothetical formation on the map clearly showing the impossibility of placing them in front of the second line or nearer than about 1,200 yards from the firing line at the beginning of the battle. The selection for a Dressing Station should be behind the regimental reserves, and if possible, on the main road leading to the rear, and at a point which affords reasonable safety to the wounded. It will seldom be possible to place it beyond the range of rifle bullets and never beyond the range of artillery fire, but any available artificial or natural shelter should be taken advantage of. It is obviously an advantage to drive up to the Dressing Station and rapidly remove the wounded from them to the Field Hospital, but it is not always possible as the stations must be controlled by the nature of the ground and exigencies of the front more than by the desirability of an outlet and they may be in operation before it is possible to determine whether or not vehicles are accessible.

The Field Hospitals are indicated on the map by small circles surrounding a small plan of the hospital. These institutions are places where the wounded brought from Dressing Stations receive the first careful examination and treatment; urgent operations are performed and permanent dressings are supplied, so it is necessary that they should be sufficiently far to the rear and well beyond the range of artillery fire. If the roads are good and an adequate ambulance service available the distance can be much greater than if the roads are heavy and the ambulances few. In the establishment of the Field Hospital three things are to be considered, i. e.—

- 1st. Protection.
- 2nd. On the direct line of communication to the base.
- 3rd. Wood and water.

Whether the entire hospital should be set up, or only one or two sections, is dependent upon the utility of buildings in the vicinity, the topography of the land, the strength of the units of the troops engaged, and the severity of the fight.

Contemporary Comment.

INSTRUCTIONS WITH REGARD TO HEAT STROKE ON MARCHES.*

TRANSLATED BY MAJOR CHARLES F. KIEFFER,
SURGEON IN THE UNITED STATES ARMY.

I. FOR OFFICERS OF THE LINE, ETC.

1. Experience and knowledge have shown that great heat has a weakening effect on us. This effect is strong in proportion as we are unaccustomed to high atmospheric heat and to the rapidity of the changes of exterior heat. We suffer particularly from the heat when warm weather develops suddenly after preceding cool days, and in the change from temperate climates into the tropics. Great heat is particularly weakening on muscular work. It diminishes the production of muscular energy and therefore the capability of man for work to a marked degree.

2. Under some circumstances the effect of heat may lead to important disturbances of the bodily heat balance and may, in the course of a few hours, cause a suddenly appearing general sickness, the so-called heat stroke.

3. Heat stroke occurs in our neighborhood during the heated period of the year, particularly with foot troops on the march.

4. The disease may run its course in several distinct pictures. The lighter cases appear as march-weaknesses (fainting), the severe cases lead to complete loss of consciousness and not infrequently to cramps (convulsions). In all cases one may observe a more or less extensive embarrassment of breathing (breath-hunger or even cessation of breathing), as well as, under some circumstances, a weakening of the heart action dangerous to life.

5. Men unaccustomed to march and the bodily weak are particularly prone to develop heat-stroke because the increased

*Translated from the Official German Army Text Book for and published by the courtesy of the Second Division, General Staff, U.S.A.

physical exertions cause disturbances of the heart action and breathing more easily in them, than in the soldier inured to marching. He who is not sufficiently broken in to marching, tires very easily. The fatigue involves all of the muscles used in marching; and to these the heart muscle and the auxiliary muscles of respiration also belong. Fatigue of these latter, particularly when the shoulders and breast are embarrassed by a heavy pack, shows itself first by exhausted breathing, recognized by weak and superficial breaths and diminished gaseous change in the lungs, and then by a weakening of the heart muscle (palpitation of the heart, exhaustion of the heart). The restriction of the muscular force of the heart in turn reacts badly on the breathing and on the heat dissipation of the body and therefore favors the development of heat stroke.

6. Among the weakened not only those must be included who have a weak bodily resistance and those who have been sick a long time, but also those who have become unaccustomed to the hard physical knocks on account of prolonged detached service from troops or, among the recently concentrated men on furlough, on account of their civil occupations. Those must be also borne in mind who, in spite of disturbances of health (for instance diarrhoea, sore feet), nevertheless make the marches but are only able to do it at the cost of greater exertion. Finally, all forms of deprivation, hunger, thirst, insufficient sleep, excesses of all sorts, and more particularly intemperance in the consumption of spirituous drinks, act with healthy persons as weakening conditions which tend to diminish the capability of resistance to heat stroke.

7. Apart from the predispositions to heat stroke which are found in the person of individuals, the following must be considered in the development of the disease: the degree and duration of the physical exertion required; high atmospheric heat with coincident humidity and deficient movement of the air; insufficient replacement of the fluids lost in the sweat, expired air, etc., and thereby an impossibility of maintaining an equality between heat production and heat dissipation.

8. To a certain extent, it is apparent from what has already been said, heat stroke may be classed among preventable diseases.

In order that wherever possible, it may be prevented the commanding officer of troops and the surgeon must work together.

9 It will be advisable to make all marches and exercises on hot days, as early as possible. When the temperature of the air, early in the morning reaches as high as 25°C . in the shade (77°F .) it is desirable that travelling marches purely, should be made so that the men should arrive in quarters early. As soon as the marches are combined with exercises these preventive measures will not always be practicable and other preventive means must be applied. Care should be taken to ensure sufficient rest at night and also that, before the march out, each man shall have had sufficient food and drink. The long standing around before the march out should be avoided. The canteens are to be filled with cold coffee or with water with the addition of refreshing substances, for instance citric acid or vinegar. Alcoholic drinks should be forbidden for this purpose. Equally it is desirable that the men take a solid luncheon with them.

10. On the march the first thing advisable, with increasing heat, is to permit early loosening of the collar and unbuttoning the top buttons of the coat; further, taking off of the necktie is also to be remembered. Properly timed rests during which the men will be permitted to lay down or even to lay off their packs will be useful. In places which are traversed by the troops on the march, riders or cyclists should be sent ahead to order the preparation of water at the side of the road. The march itself should be made in as open a formation as possible so that there may be a change of air between columns. It is also to be commended, during long marches, from time to time,—say after the rests,—to make a change in the order of march so that individual companies, etc., may in rotation, march at the head of the column. In this way one company is prevented from always having the unfavorable place in the rear of the column where they are exposed to the dust, the contaminated air and any possible balking in the column on account of differing rates of march, more than at the head of the column.

In order to detect suspiciously sick persons at the right time, the commanding officer, when the troops are accompanied by a

mounted medical officer, has the latter inconspicuously observe the column while marching by.

With regard to the induction of heat-stroke cases, narrow roads through the woods and sunken roads with sandy bottoms are particularly dangerous. Long halts at the collection points should be avoided and, therefore, the billets should be divided while still on the march. Before moving into large and closely built cities, when some distance still remains to be traversed, an additional halt or rest will be indicated.

11. The care of the individual man should begin before any manoeuvres, with the testing of the conditions mentioned in Paragraph 6. Weakened men should absolutely not be taken to Grand Manoeuvres but should gradually be accustomed to increased exertions. Weak men are to be spared by lightening their pack or their clothing. The assistance of the medical officer present is necessary in judging of the ability to march of those who have been sick or those who are particularly in need of being spared.

12. On the march itself certain prodromes of marching-faintness must be held in attention. They are the warning signals of approaching danger. Therefore men who stagger, become careless or indifferent, do not answer to their names, who have a sticky perspiration with a pale or bluish color of the face, should at once be removed from the column and, whenever possible, laid down in a shady place in a current of air and free from dust, where restoratives should be applied. Their pack should be removed and their clothing aired. After a short rest such cases as a rule recover sufficiently so that they are able, with the assistance of a trustworthy companion, to follow the column even though it be slowly.

13. In the pronounced forms of heat stroke the stricken man falls suddenly to the ground; frequently with convulsions. His face is, as a rule, a dark bluish-red; but it may be, in the severest cases, pale with a dark bluish discoloration of the lips. The breathing, as a rule, is very slow and may be snoring. The pulse is usually hurried, often can hardly be felt and the skin, as a rule, is burning hot although, exceptionally, and in the very severe cases, it may be cool and moist.

14. *In every case of pronounced heat-stroke provision must be made to obtain medical aid as early as possible.* Until the arrival of the physician the sick man should, whenever possible, be placed in a shady or at least an airy spot, never in a close room or a hot barn, etc. His pack should be taken off and an attempt should be made to give him drinks. He should be laid down flat with the head slightly elevated when the face is flushed, and the head not elevated at all when the face is pale. His clothing should be loosened or partly removed. The sick man should be fanned using pieces of his clothing for this purpose.

15. Added to this, cold water should be poured or sprinkled over him or when there is not sufficient water the body should be rubbed with a cloth dipped in water. Even friction of the hands and feet, tickling the mucous membrane of the nose—with a blade of grass for instance,—and loud calling, are useful. In those cases in which, in the beginning, the sick man cannot swallow, as soon as he is able to do so, he should be given fluids freely. After the sick man has drunk sufficient water or similar drinks he may be given wine or cognac; however, in the absence of medical advice, this should be administered with care and in moderate amounts.

16. *Whenever the breathing of a man with heat stroke is in any way embarrassed, before all other things and as the most important, artificial respiration must be begun and continued until natural breathing is completely restored or until a physician is on the spot and gives other orders.*

17. For this purpose the stricken man is placed on his back on the ground; with all of the clothing removed from the upper half of the body and with his trousers band loosened. A roll which may be extemporized out of his clothing, is pushed under his back in such a fashion that his head and shoulders are strongly bent backward and downward. The arms lay at the side of the body. The tongue of the sick man is drawn out of the mouth, seized with a cloth between the thumb and the forefinger and held out beyond the teeth in order that it should not fall back into the throat and block the way to the air passages.

The one who is to conduct the artificial respiration kneels at the head of the sick man, grasps, with his two hands, the arms at the elbow and draws them with a steady but strong slow pull so far upward that they lie to the sides of the head. In this manner he broadens the chest cavity of the sick man and causes a rushing-in of air into the lungs.

Now he makes a slight pause, while he counts three slowly and then he draws the arms slowly to the chest again pressing them firmly from both sides against the chest wall. In this way the cavity of the breast is diminished, the lungs are forced together and the air they contain is forced out.

After this has happened, a slight pause is again made (counting three slowly) and the first motion is repeated and after a short pause again the second motion, and so forth until the breathing becomes voluntary and regular. The motions must be made about 15 or 20 times to the minute. If the artificial respiration is properly performed one may hear with each inspiration, the air rushing into the lungs with a swishing, gurgling or sighing sound.

18. If cramps (convulsions) occur before the arrival of medical aid, one must be restricted to taking measures so that the sick man does not injure himself. During the pauses when he is free from convulsions he is to be treated as already specified in paragraphs 14 to 16.

19. Until the arrival of a physician the patient must be prevented from falling into a deep sleep by the application of external irritants and his breathing must be constantly watched.

CRYOGENIN IN TYPHOID FEVER.

CRYOGENIN (*Le Caducée*) may be employed with advantage along with the baths. It improves the general condition, hastens defervescence, and allows the baths to be discontinued or to be given at a higher temperature. Thanks to its harmlessness, it is the antipyretic to be used whenever cold baths are contraindicated. Its efficacy is absolute in the fever of convalescence.—SAMUEL M. DELOFFRE.

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Editorial Expression.

THE FIRST TENT FIELD HOSPITAL

THE Commissioners for marking the Battlefield of Shiloh have designated with a suitable tablet the location of the first tent field hospital, established by General (then

Captain) B.J.

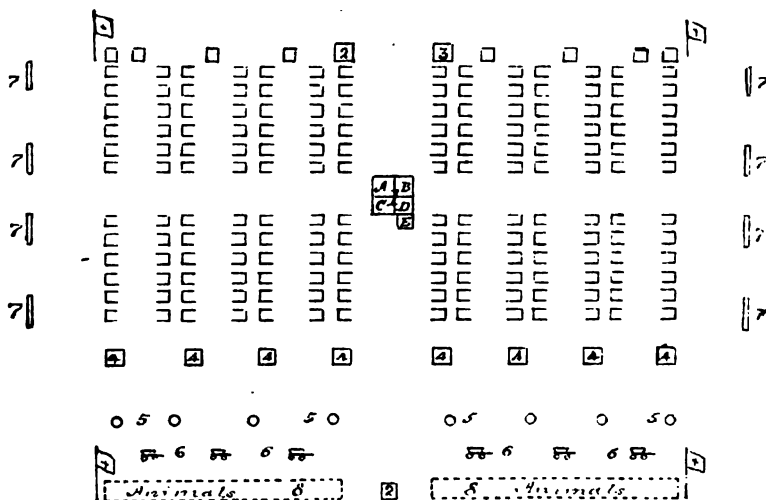
D. Irwin upon that historic field. It was by the plan there inaugurated of substituting tents on the field for the barns, stables farm houses, churches, etc. that might be found in the region of the contending armies, that General Irwin suggested the present mode of providing prompt shelter and suitable sanitary accommodations for the wounded. The develop-



Memorial Tablet on the Battlefield of Shiloh, designating the location of the First Tent Field Hospital.

ment of the idea has been described by General Irwin as follows:

"It became necessary to have one of the operating stations moved forward to a deserted farmhouse, situated on an open piece of level, unbroken ground. The presence of a spring of cool, potable water and the nearness of the building to a small branch of a creek were advantages that were promptly recognized, and but a short time had elapsed ere these valuable desiderata were utilized in affording shelter and other comforts for the large number of wounded of our own division and those of the contend-



Plan of the First Tent Field Hospital.

1. Executive Building: A, Office; B, Operating Room; C, Dispensary; D, Dining Room for Officers; E, Kitchen. 2, Guard. 3, Stores. 4, Officers and Sick Officers. 5, Teamsters. 6, Ambulances and Wagons. 7, Latrines. 8, Picket Lines.

ing forces who had been disabled on that part of the battlefield during the conflict of the preceding day and left without assistance some twenty-four to thirty-six hours. The proximity of the operating station to the recaptured camp of a division of our troops who had been driven therefrom and partly captured by the enemy during the preceding day, suggested the utilization of the abandoned tents for the use of the wounded. As soon as the battle ceased the regimental hospital tents, commissary tents, and the wall tents were accordingly taken possession of, and within a

short space of time were removed to and pitched in regular camp order on the level ground by which the house was surrounded. The building afforded an operating room, dispensary, office, kitchen, dining-room for the officers attached to the establishment. Long into the night the ambulances continued to bring in the wounded who, after receiving the necessary professional attendance, were made as comfortable as possible, by being supplied with an abundance of warm food, good bedding and shelter against the inclement weather. Next day the camp was enlarged and systematically arranged and the tents increased so as to conveniently accommodate some three hundred patients. All bedsteads, cots, bedsprings cooking and necessary utensils, hay and straw found in the recaptured camp were appropriated for the use of the hospital, and on the evening of the 8th, the Division Medical Purveyor reached us, bringing our medical supplies and hospital stores. By that time the hospital had already assumed the proportion and discipline of a well-regulated regimental camp, arranged with a view to meet the special



General B. J. D. Irwin.

wants of those for whom it had been established. Some mattresses had been secured, and the bed sacks, filled with hay or straw, were placed on cots or improvised bunks, so that every patient was provided with comfortable sleeping accommodations. A suitable number of attendants of each class were detailed for duty in the establishment, which was placed under the charge of a competent executive medical officer, aided by the necessary number of professional assistants, so that the invalids were promptly and regularly supplied with abundance of properly prepared, nutritious food, and even a

fair supply of extra diet, and delicacies were served to the inmates who needed special attention. It soon became manifest that the wounded who were accommodated in that improvised field hospital were better provided for and more comfortable in every particular than those who were hurried aboard the crowded transports."

GYMNASTICS AND ATHLETICS.

IN connection with the article published in the March number of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS on "Gymnastics and Athletics, with Special Reference to Football," Colonel Havard requests us to publish a letter upon the subject received by him from Medical Inspector Beyer of the Navy, remarking, "I have questioned the accuracy of Dr. Beyer's figures without having others to put in their place and thereby may have done him an injustice. I shall go over the subject again but meanwhile would request that you publish this letter." Dr. Beyer's letter is as follows:

"My attention was called to an article of yours on "Gymnastics and Athletics" in the March number of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS. This article I have read with considerable interest and I must say that you have treated the subject of your essay with uncommon fairness.

"All the more surprised, however, was I to find that you had made a rather notable exception in referring to some of my work. While publicly questioning the accuracy of this work, you have failed to bring the necessary new facts to warrant your own position and prove your own argument. You must know that in all matters of observation as of experiment, facts alone can be allowed to fall into the balance against other facts. Such facts must, moreover, be derived from material and under conditions as nearly as possible identical with those with which they are concerned if they are to have any comparative value. Assuming football training to be more or less the same in both academies, special attention, for instance, must certainly be paid to age and initial weight of the boys under training because these are not the same in the two places.

"Without, however, going into details, I will limit myself here to assuring you that the figures I have published represent the results of correct observations. If you will take the trouble during the coming foot-ball season and do a small amount of weighing yourself, you will, I am quite certain, become less and less surprised and more and more convinced as you proceed

that such results as I have recorded are, indeed, of common occurrence. The fifty-six tables which were published by me in the proceedings of the Naval Institute (whole number seventy-four) under the title "Growth of U.S. Naval Cadets" will furnish you with ample means for making comparisons.

"As regards training for foot-ball my experience has been, after the initial loss in weight, during the first week of hard training is over, the weight usually begins to increase steadily up to the end of the training period provided no overtraining occurs or intervenes to interrupt it.

"And, after you will have thus become convinced of the truthfulness of my figures I hope you will do me the justice of correcting the mistaken impression, through the same channel, which your late paper has conveyed on its readers, as regards my work. I am not fond of polemics that always end in personalities not calculated to add to our common stock of knowledge."

TREATMENT OF ABDOMINAL INJURIES.

IN connection with the paper of Colonel John E. Summers of Nebraska, published in the last number of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS, the following interesting discussion occurred:

SURGEON CHARLES F. STOKES, U.S.N.—I would like to ask Colonel Summers if he has had any experience with the sphygmomanometer in determining invasion of the peritoneal sac. I was called in consultation to see the case of a man who had been run over by a carriage, and the case was in the doubtful class. There were a good many signs indicating laceration of the viscera, and, many against it. We used the sphygmomanometer and found the blood pressure 127 mm. Hg. and did not operate. It proved to be a case of no rupture and the man recovered.

COLONEL JOHN E. SUMMERS.—I have had no experience in that direction. The only cases in which I have used the sphygmomanometer have been on the operating table to determine the condition of my patient, following the practice in the Johns Hopkins Hospital, and to learn the condition of my patients afterward. I thought it was a good instrument to make the prognosis. The work of Crile of Cleveland, and others indicates that it is a good instrument, but my own experience is too limited to enable me to express an opinion.

News of the Services.

Dr. Roger P. Ames, U.S.A., granted one month's leave.

Medical Inspector F. Anderson, U.S.N., ordered to the Washington Marine Barracks.

P. A. Surgeon F. L. Benton, U.S.N., ordered for examination for promotion.

P. A. Surgeon L. W. Bishop, U.S.N., ordered from the Naval Museum of Hygiene and Medical School to the *Dubuque*.

Lieutenant William N. Bispham, U.S.A., in temporary charge of Chief Surgeon's Office, Department of Colorado, and ordered before a Promotion Board at the Presidio General Hospital.

P. A. Surgeon F. M. Bogan, U.S.N., ordered to the Yokohama Naval Hospital.

Honorable Charles J. Bonaparte, of Baltimore, Md., has been appointed Secretary of the Navy to take effect July 1, 1905.

Major William C. Borden, U.S.A., ordered to New York City for consultation with architects in connectinn with the new Army General Hospital to be constructed in Washington.

Lieutenant Roger Brooke, Jr., U.S.A., ordered to Fort Bayard, N. M., and granted three months leave of absence.

Dr. Simon P. Brooks. P.H.&M.H.S., appointed Acting Assistant Surgeon at Memphis, Tenn.

Lieutenant William H. Brooks, U.S.A., granted two months and a half leave.

Assistant Surgeon H. L. Brown. U.S.N., ordered from the Guantanamo Naval Station to the *Texas*.

Lieutenant Earl H. Bruns, U.S.A., ordered to the Sequoia National Park.

Major Edward C. Carter, U.S.A., upon being relieved as Commissioner of Public Health of the Philippine Islands was presented with a beautiful punch bowl made of taelobo shell bound with solid silver, bearing the inscription "Presented to Major E. C. Carter by the members of the Bureau of Health of the Philippine Islands, April 30, 1905." The bowl is accompanied by a silver tray, six silver cups and a ladle, each bearing the monogram of Major Carter. He also received from the native members of the Manila Board of Health an exquisite souvenir album.

Dr. Albion McD. Coffey, U.S.A., ordered from Fort Worden to Fort Davis, Alaska.

Lieutenant Clarence L. Cole, U.S.A., ordered to the Army Medical Museum.

Captain Christopher C. Collins, U.S.A., granted three months leave when relieved from duty in the Philippines.

Lieutenant Colonel Edward T. Comegys, U.S.A., retired on thirty years service.

Surgeon F. J. B. Cordeiro, U.S.N., ordered to the *Yankee*.

P. A. Surgeon G. M. Corput, P.H.&M.H.S., granted a month's leave.

Lieutenant Charles F. Craig, U.S.A., ordered to accompany troops from Presidio to Fort Riley.

Dr. Waller H. Dade, U.S.A., ordered from Fort D. A. Russell to Fort DuChesne.

Lieutenant Frederick A. Dale, U.S.A., ordered from the Washington Barracks General Hospital to Fort Walla Walla and granted two and a half month's leave.

Dr. G. Parker Dillon, U.S.A., ordered from the Presidio General Hospital to Fort McDowell.

Dr. Thomas Francis Duhigg, of Ayrshire, Iowa, has qualified as an approved candidate for the Army Medical Corps.

Assistant Surgeon B. Elmore, U.S.N., appointed to the Naval Medical Corps with the rank of Lieutenant (J. G.).

Major Charles B. Ewing, U.S.A., left Columbus Barracks, Ohio, with recruits en route to Vancouver Barracks.

Assistant Surgeon E. O. J. Eytinge, U.S.N., appointed to the Naval Medical Corps with the rank of Lieutenant (J. G.), and ordered to the New York Naval Hospital.

Assistant Surgeon W. G. Farwell, U.S.N., ordered from the New York Naval Hospital to the *Brooklyn*.

A. A. Surgeon Charles E. Fisher, P.H.&M.H.S., ordered to Toledo, Ohio.

P. A. Surgeon F. M. Furlong, U.S.N., ordered for examination for promotion.

P. A. Surgeon W. M. Garton, U.S.N., ordered for examination for promotion.

Surgeon J. D. Gatewood, U.S.N., ordered from the *Yankee* home to wait orders.

Lieutenant Edward F. Geddings, U.S.A., ordered before a Promotion Board at the Presidio General Hospital.

Lieutenant Herbert C. Gibner, U.S.A., ordered to the Yosemite National Park.

Major Robert J. Gibson, U.S.A., assigned to duty at Fort Logan.

Lieutenant Harry L. Gilchrist, U.S.A., ordered to report to the Promotion Board in Washington.

Colonel William C. Gorgas, U.S.A., appointed member of an examining Board at Ancon.

Assistant Surgeon C. T. Grayson, U.S.N., ordered from the Washington Marine Barracks to the *Maryland*.

Surgeon J. A. Guthrie, U.S.N., ordered from the *Dixie* to the New York Naval Hospital for treatment; discharged from treatment at the New York Naval Hospital and granted three months sick leave.

Dr. Louis Hedron Hanson, of Wisconsin, has qualified as an approved candidate for the Army Medical Corps.

Surgeon Hatton Nathan Thompson Harris, U.S.N., died at Pensacola, Fla., May 19, 1905.

Captain Eugene H. Hartnett, U.S.A., ordered from Key West Barracks to Fort Hancock.

Dr. Hermon Erwin Haseltine, of Matteawan, N. Y., has qualified as an approved candidate for the Army Medical Corps.

Dr. Gustavus I. Hogue, U.S.A., granted one month's leave.

P. A. Surgeon J. M. Holt, P.H.&M.H.S., granted a month's leave.

Dr. Lucius Locke Hopwood, of Des Moines, Iowa, has qualified as an approved candidate for the Army Medical Corps.

A. A. Surgeon Montafix W. Houghton, P.H.&M.H.S., appointed for duty at Providence, R. I.

Assistant Surgeon K. E. Hoyt, U.S.N., ordered from the *Texas* home to waiting orders.

Lieutenant Percy L. Jones, U.S.A., ordered for examination for promotion.

Dr. John P. Kelly, U.S.A., granted four months leave.

Captain James M. Kennedy, U.S.A., ordered to accompany troops from Benicia Barracks to Vancouver Barracks, returning to the Presidio General Hospital.

P. A. Surgeon J. W. Kerr, P.H.&M.H.S., granted one month's leave.

Lieutenant Henry S. Kiersted, U.S.A., ordered from the Sequoia National Park to the Presidio of Monterey.

Lieutenant Conrad E. Koerper, U.S.A., ordered to the Washington General Hospital.

P. A. Surgeon J. F. Leys, U.S.N., ordered for examination for promotion.

Assistant Surgeon H. D. Long, P.H.&M.H.S., appointed Assistant Surgeon and ordered to Ellis Island, N. Y.

Lieutenant Thomas C. Lyster, U.S.A., ordered before a Promotion Board at Ancon.

Lieutenant W. J. Lyster, U.S.A., ordered before a Promotion Board at the Presidio General Hospital.

Lieutenant P. H. McAndrew, U.S.A., on temporary duty at Arcadia Rifle Range.

P. A. Surgeon T. B. McClintic, P.H. & M.H.S., ordered for special temporary duty at Berkley Springs, W. Va.

A. A. Surgeon E. F. McConnell, P.H. & M.H.S., ordered from Neuvas, Cuba, to the New York Immigration Depot.

Dr. Donald P. McCord, U.S.A., ordered from St. Louis to Fort Rodman.

Major C. C. McCulloch, Jr., U.S.A., detailed upon a Medical Promotion Board, ordered from Fort Hancock to Monterey, Cal., and later to Fort Meade.

Dr. Fred S. Macy, U.S.A., granted one month's leave.

Major General Otis H. Marion, M.V.M., Retired, presents the Association with a copy of his report as Surgeon General of Massachusetts for 1904, which shows graphically the high standard of the Medical Department of the Old Bay State.

Major Charles F. Mason, U.S.A., detailed upon a Medical Promotion Board.

Assistant Surgeon G. M. Mayers, U.S.N., ordered to Washington for examination for promotion.

Major E. A. Mearns, U.S.A., ordered to the Philippines.

Major Samuel C. Milligan, Brigade Surgeon, Pennsylvania National Guard, has resigned.

Honorable Paul Morton has resigned as Secretary of the Navy to take effect July 1, 1905.

Assistant Surgeon J. F. Murphy, U.S.N., ordered to additional duty on the *Dubuque*, and relieved therefrom.

Lieutenant John A. Murtagh, U.S.A., ordered to accompany troops from the Presidio to Fort Myer.

P. A. Surgeon K. Ohnesorg, U.S.N., ordered from the Naval Museum of Hygiene and Medical School on waiting orders.

Assistant Surgeon E. T. Olsen, P.H. & M.H.S., appointed Assistant Surgeon and ordered to Ellis Island, N. Y.

Assistant Surgeon G. M. Olson, U.S.N., appointed to the Naval Medical Corps with the rank of Lieutenant (J. G.) and ordered to the Philadelphia Naval Hospital.

Major William O. Owen, U.S.A., relieved from duty at Fort Logan and assigned to the Presidio of Monterey.

Lieutenant Colonel Harry O. Perley, U.S.A., detailed upon a Medical Promotion Board.

Lieutenant Elbert E. Persons, U.S.A., ordered before a Promotion Board at the Presidio General Hospital.

Dr. Omar Walker Pinkston, U.S.A., of Fort Mansfield, R. I., has qualified as an approved candidate for the Army Medical Corps.

Surgeon J. C. Pryor, U.S.N., ordered from the Museum of Hygiene and Medical School to the Naval and Medical Examining Board in Washington.

Assistant Surgeon W. S. Pugh, Jr., ordered from the *Prairie* to the Guantanamo Naval Station and the *Monongahela*.

Captain I. W. Rand, U.S.A., ordered to accompany troops from the Presidio to Portland, Oreg.

Dr. Howard Allen Reed, of Milford, Pa., has qualified as an approved candidate for the Army Medical Corps.

Lieutenant John J. Reilly, U.S.A., ordered from Jackson Barracks to Fort Slocum.

Lieutenant William W. Reno, U.S.A., ordered from Fort Myer to temporary duty at Washington Barracks.

Major Frederick P. Reynolds, U.S.A., ordered from the Yosemite National Park to the Presidio of San Francisco.

Lieutenant Thomas L. Rhoads, U.S.A., ordered for examination for promotion.

Lieutenant Robert L. Richards, U.S.A., ordered to temporary duty at Fort Mason and assigned to station at Vancouver Barracks.

Lieutenant Chandler P. Robbins, U.S.A., ordered to report to the Promotion Board in Washington.

Lieutenant William Roberts, U.S.A., ordered from Fort Greble to Fort Hamilton.

P. A. Surgeon S. S. Rodman, U.S.N., ordered from the *Ranger* to the *Rainbow*.

Lieutenant Henry H. Rutherford, U.S.A., ordered before a Promotion Board at the Presidio General Hospital.

Surgeon H. W. Sawtelle, P.H.&M.H.S., ordered from the New York Purveying Depot to Washington for special temporary duty.

Dr. Ferdinand Schmitter, of Madison, Wis., has qualified as an approved candidate for the Army Medical Corps.

Dr. Sidney Lockhart Scott, of Fredericksburg, Va., has qualified as an approved candidate for the Army Medical Corps, and ordered from Fredericksburg, Va., for duty at Camp Saunders, Glen Burnie, Md.

Assistant Surgeon H. Shaw, U.S.N., ordered from the *Yankee* home to wait orders.

Captain Ira A. Shimer, U.S.A., ordered for duty with the Isthmian Canal Commission, and appointed member of an Examining Board at Ancon.

Assistant Surgeon F. M. Shook, U.S.N., ordered to the Norfolk Naval Hospital.

Dr. Robert E. Sievers, U.S.A., ordered from Fort Harrison to Fort Yellowstone.

Dr. Ernest F. Slater, U.S.A., granted a month and a half leave.

Lieutenant Herbert M. Smith, U.S.A., ordered from Fort McDowell to the Presidio General Hospital.

Assistant Surgeon R. D. Spratt, P.H.&M.H.S., ordered from New Orleans to Louisville, and ordered for temporary duty at Cleveland, Ohio.

Assistant Surgeon P. R. Stalnaker, U.S.N., ordered to the New York Naval Hospital.

Dr. Charles H. Stearns, U.S.A., granted one month's leave.

Captain Henry R. Stiles, U.S.A., ordered for examination for promotion.

Surgeon E. R. Stitt, U.S.N., ordered from the Naval Museum of Hygiene and Medical School to the Canacao Naval Hospital.

Surgeon C. F. Stokes, U.S.N., appointed member of the Anatomical Board of the District of Columbia.

Captain John H. Stone, U.S.A., ordered from Fort Leavenworth to Key West Barracks.

Surgeon G. W. Stoner, P.H. & M.H.S., ordered to make an inspection trip along the Canadian border.

Captain Paul F. Straub, U.S.A., appointed member of an Examining Board at Ancon.

A. A. Surgeon A. F. Stuart, P.H. & M.H.S., granted a month's leave.

Assistant Surgeon R. L. Sutton, U.S.N., ordered to Washington for examination for retirement and placed thereafter on waiting orders.

P. A. Surgeon J. C. Thompson, U.S.N., ordered for examination for promotion.

Dr. Charles W. Thorp, U.S.A., returned to Fort Ethan Allen from temporary duty at Fort Adams.

Lieutenant Colonel George H. Torney, U.S.A., ordered to additional duty in temporary charge of the office of the Chief Surgeon, Department of California.

Captain Willard P. Truby, U.S.A., ordered from Fort Preble to Fort Niagara.

Major B. K. Van Naten, of Franklin, Pa., has been promoted from Lieutenant and Assistant Surgeon of the 16th Regiment, N. G. Pa., to be Brigade Surgeon of the 2nd Brigade, N. G. Pa.

Lieutenant G. McD. Van Poole, U.S.A., granted thirty days leave.

Assistant Surgeon General George Tully Vaughan, P.H. & M.H.S., granted a month and a half leave.

Excellenzarzt Karl Eduard von Fichte, Surgeon General of Wurtemberg, Retired, long a Corresponding Member of the Association of Military Surgeons of the United States, died at Stuttgart, April 8, 1905.

Lieutenant S. H. Wadhams, U.S.A., ordered before a Promotion Board at the Presidio General Hospital.

Assistant Surgeon R. A. Warner, U.S.N., ordered to the Philadelphia Naval Hospital.

Dr. Victor E. Watkins, U.S.A., ordered from Fort Apache to Fort DuChesne, and back.

Lieutenant Walter D. Webb, U.S.A., granted three months leave.

Captain Henry A. Webber, U.S.A., assigned to temporary duty at Fort Stevens.

Assistant Surgeon G. L. Wickes, U.S.N., ordered from the *Solace* to the Cavite Naval Station.

Surgeon F. W. F. Wieber, U.S.N., ordered from the *Prairie* home to wait orders.

Dr. Stephen Wythe, U.S.A., ordered from the Presidio of San Francisco to the Depot of Recruits and Casuals, Angel Island.

Assistant Surgeon W. J. Zalesky, U.S.N. ordered from the Naval Academy to the *Yankee*.

A WHISTLE FOR FIRST AID.—M. Matignon, a Frenchman connected with the Japanese Red Cross, has invented a whistle to be used by the wound-

ed in calling for first aid and also available as a substitute for the soldier's ordinary identification plate.

THE NAVAL HOSPITAL SHIP *Relief*, fitted out as described by Surgeon Braisted in the last Journal, still remains at the Mare Island Navy Yard, there being no funds available to put it in commission. It will remain however ready for use in case of hostilities.

DIAGNOSIS OF APPARENT DEATH ON THE BATTLEFIELD.—Dr. Icard of Marseilles publishes a monograph upon the danger of apparent death on the battlefield, proposing as an infallible test the hypodermic injection of fluoresceine. If the blood is still circulating, the body rapidly turns an intense yellow, while the eye balls become an emerald green. The test can be made very rapidly and the appearances are so marked as to necessarily attract attention.

AN ITALIAN VIEW OF THE LAST MEETING OF THE MILITARY SURGEONS.—The last number of the *Annali di Medicina Navale* contains an interesting report upon the St. Louis meeting of the Association of Military Surgeons by Lieutenant Colonel Abbamondi, who was the representative of the Italian Navy at the meeting. It contains abstracts of a number of papers, those devoted to surgery being particularly prominent, although more space is devoted to the subject of transportation of the wounded, with full abstracts of the papers of Surgeons Stokes and Lung, with comments upon the subject. The remarks made in conferring the insignia of the Association upon the Italian delegates are quoted in full.

SPECIAL DIET PURCHASES FOR ARMY HOSPITALS. Paragraph 1235 of the Army Regulations has been amended to provide that "the medical officer in charge of a general, post or camp hospital, hospital ship, or transport carrying patients is authorized to purchase, in conformity with the requirements of Article LI, such articles of food, both solid and liquid, not carried in stock by the subsistence officer who issues rations to the hospital, and to call upon such subsistence officer for the issue of such quantities of articles from the stock already on hand as, in the judgment of the medical officer, are required for the diet of enlisted patients under his charge who are too sick to be subsisted on the ration as ordinarily issued; the total combined money value of the stores hereby authorized to be purchased and issued as above in any month not to exceed the rate calculated on the month's transactions of thirty-eight cents per man per day for those actually requiring special diet (except that at the general hospital at Fort Bayard, New Mexico, fifty cents per man per day is authorized). Subsistence officers are authorized to pay all duly certified bills of purchases made by medical officers under the provisions of this paragraph, or to make the purchases themselves at the request of the medical officers, and to make issues for special diet hereunder from stores on hand at their request, provided the rate of thirty-eight cents per man per day for those enlisted men actually requiring special diet is not exceeded in any month, except at the general hospital at Fort Bayard, New Mexico, where fifty cents is authorized. No article from the special diet allowance will be purchased from any other source so long as the Subsistence Department has it in stock."

Current Literature.

THE DESTRUCTION OF MOSQUITOES.*

IN this instructive little pamphlet the author gives an account of the drainage and other works carried out with a view to exterminating the mosquitoes at St. Lucia, W. I. in 1902 and 1903. He quotes very largely, in introducing his subject, from the reports of Colonel Gorgas and others concerning the similar operations at Havana, and then follows in great detail with an account of the work at St. Lucia, in which the Engineer Department and the Royal Army Medical Corps worked together with most satisfactory results.

BACTERIOLOGY AND SURGICAL TECHNIC FOR NURSES.†

THIS useful little work which has been found of so much value in the training of nurses, has been greatly developed and enlarged by its reviser, and forms a reliable and excellent text book for nurses, not attempting to go too deeply into the subject and still affording sufficient information for all the practical needs of the nurse.

REFRACTION.‡

THIS new edition of a work which has had so popular a run as to pass through three editions in five years is a material advance upon the previous editions, quite a number of changes having been made including new illustrations and the description of several new instruments.

***The Destruction of Mosquitoes.** By Major W. M. HODDER, Royal Engineers. 8vo.; pp. 70, with two half tones and three maps. Chatham, Royal Engineers' Institute, 1904.

†**Bacteriology and Surgical Technic for Nurses.** By EMILY M. A. STONEY Second edition. Revised and enlarged by FREDERICK R. GRIFFITH, M.D. 12mo; pp. 278, with numerous illustrations. Philadelphia, W. B. Saunders & Co., 1905.

‡**Refraction and How to Refract.** By JAMES THORINGTON, M.D. Third edition. 8vo; pp. 314 with 215 illustrations. Philadelphia, P. Blakiston's Son & Co., 1904.

A DICTIONARY OF NEW MEDICAL TERMS.*

IN this remarkable book, Dr. Gould has made a most astonishing exhibit of the progress of medical science during the last decade, grouping in its pages the new words which have appeared in the language of medicine and its allied sciences since the issue of the first edition of his Dictionary of Medicine ten years ago. The work, as might be expected from its distinguished author, is thorough and comprehensive, no new word, so far as we have been able to discover, failing to find a place in its pages. It is uniform in design and style with the original dictionary to which it is supplementary and will be found by the profession a most useful implement in the exercise of medical study.

INTERNATIONAL CLINICS †

THE new volume of Lippincott's International Clinics presents the usual list of interesting material. Something over a third of this number is devoted to a series of essays upon syphilis, the remainder consisting of papers upon medicine, surgery, gynecology and neurology.

GENERAL PATHOLOGIC HISTOLOGY.‡

THIS new volume of Saunders' Medical Hand-Atlases continues to uphold the reputation for thoroughness, completeness and interest established by previous issues. The work of Dr. Durck, which had the highest possible standing in Germany, has been further developed and improved by Dr. Hektoen, resulting in a volume of the greatest value.

***A Dictionary of New Medical Terms.** Including upwards of 38,000 Words and Many Useful Tables, Being a Supplement to "An Illustrated Dictionary of Medicine, Biology and Allied Sciences." By GEORGE M. GOULD, A.M., M.D. Imp. 8vo; pp. 571. Philadelphia, P. Blakiston's Son & Co., 1905.

†**International Clinics.** Edited by A. O. J. KELLEY, M. D. and others. Fourteenth series, Vol. III, 1904, 8vo.; pp. 302. Philadelphia J. B. Lippincott Co., 1904.

‡**Saunders' Medical Hand-Atlases: Atlas and Epitome of General Pathologic Histology.** By Dr. H. DURCK. Edited by LUDVIG HEKTOEN, M. D. 12mo. pp. 371, with 172 figures and thirty-six text-cuts, many in colors. Philadelphia. New York and London, W. B. Saunders & Co., 1904.

ESSENTIALS OF ANATOMY, BACTERIOLOGY, MATERIA MEDICA AND THERAPEUTICS, MEDICAL CHEMISTRY, NERVOUS DISEASES AND INSANITY.*

WHEN the series of question compends of which these volumes form a part, first appeared, the writer commended them very cordially as guides to the study of medicine and as remembrancers of the main outlines upon which might be arranged the more complete information to be gained from the larger text books. During the fifteen years that have since elapsed numerous new and large editions have found their way into the hands of the profession and undoubtedly the 240,000 copies which have been published have been of very great advantage in medical work. The revision of the present volumes brings them fully up to date and establishes their present value in the field to which they are devoted.

THE MODERN MASTOID OPERATION.†

THIS superb work is a genuine edition de luxe, such as in these days rarely appears, and is the highest type of monograph. Scientifically it is comprehensive and complete; from a literary standpoint it is clear, succinct and expressive; from an artistic viewpoint it is above criticism, and on the mechanical side it is deserving of the highest praise.

***Essentials of Anatomy.** By CHARLES B. NANCREDE, M. D. Seventh edition. 12mo. Philadelphia, W. B. Saunders & Co., 1904.

***Essentials of Bacteriology.** By M. V. BALL, M. D. Fifth edition thoroughly revised by KARL M. VOGEL, M. D. 12mo. Philadelphia, W. B. Saunders & Co., 1904.

***Essentials of Materia Medica, Therapeutics and Prescription Writing.** By HENRY MORRIS, M. D. Sixth edition thoroughly revised by W. A. BASTEDO, M. D. 12mo. Philadelphia, W. B. Saunders & Co., 1904.

***Essentials of Medical Chemistry.** Organic and Inorganic. Containing also questions on medical physics, chemical philosophy, medical processes, toxicology, etc. By LAWRENCE WOLFF, M. D. Sixth edition. By A. FERREE WITMER, Ph G. 12mo. pp. 225. Philadelphia, New York and London, W. B. Saunders & Co., 1904.

***Essentials of Nervous Diseases and Insanity.** By JOHN C. SHAW, M. D. Fourth edition thoroughly revised by SMITH ELY JELLIFFE, M. D. 12mo. Philadelphia, W. B. Saunders & Co., 1904.

†**The Modern Mastoid Operation.** By FREDERICK WHITING, M. D. 4to.: pp. 353, with 25 halftones and 23 key plates. Philadelphia, P. Blakiston's Son & Co., 1905.

OPERATIVE OPHTHALMOLOGY.*

IN continuation of the admirable series of medical hand atlases being brought out in this country by the Messrs. Saunders, the volume of Dr. Haab on operative ophthalmology is of particular value. The illustrations are on a large scale, and, while accurate delineations, are yet sufficiently diagrammatic to bring out strongly the points most useful in connection with their operative treatment. The work will prove a most valuable addition to the facilities now afforded in connection with ophthalmological work.

THE ROENTGEN RAYS.†

IT is a most remarkable record for so extensive and exhaustive a book as Pusey and Caldwell's Roentgen Rays to have gone into its second edition in a single year. An examination of the work however shows its very great practical value and makes clear the reason for its remarkable circulation. The chapters of Mr. Caldwell upon the physical and mechanical features of X-Ray work are clear, definite and intelligible, while the therapeutic and diagnostic aspects worked out by Professor Pusey are uncommonly full and accurate. Advantage has been taken of the issue of a second edition to bring case histories and other matter down to date and to introduce a few other improvements such as the addition of new illustrations to the work.

**Atlas and Epitome of Operative Ophthalmology.* By O. HAAB of Zürich. Edited with additions by GEORGE E. DE SCHWEINITZ, M. D. 12mo.; pp. 377, with 184 illustrations, including thirty colored plates. Philadelphia, New York, London. W. B. Saunders & Co., 1905.

†*The Practical Operation of Roentgen Rays in Therapeutics and Diagnosis.* By WILLIAM ALLEN PUSEY, M. D. and EUGENE W. CALDWELL, B. S. Second edition, revised and enlarged. 8vo; pp. 690, with 195 illustrations including four colored plates. Philadelphia, New York and London. W. B. Saunders & Co., 1904.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

THE ORGANIZATION AND OPERATION OF THE MEDICAL SERVICE OF THE FRONT IN MODERN WARFARE.

By COLONEL PIETRO IMBRIACO,
SANITARY DIRECTOR OF THE EIGHTH CORPS OF THE ROYAL ITALIAN ARMY.
TRANSLATED BY LIEUTENANT SAMUEL M. DELOFFRE,
ASSISTANT SURGEON IN THE UNITED STATES ARMY.



THE duties of the medical service in modern warfare have become more complex, more difficult and more delicate, on account of the continuous improvements in armament, of the changes occurring in strategical, tactical and logistical conditions of the opposing armies, and also because of the progress made by medical science, and of the greater demands of civilization.

That is why in all civilized countries, the scientists, the philanthropists, the governments, and the aid societies, by their studies and efforts endeavor to make the sanitary service of armies conform as much as possible to the exigencies of modern warfare.

But, in spite of all this, the last wars have unfortunately demonstrated the insufficiency of these institutions; and, also, the necessity for further study in order to ameliorate the condition of things, and to make more modern improvements. For this reason I have not thought it inopportune nor unworthy of

this assemblage which I have the honor of addressing, to call your attention to certain points concerning the medical service on the battlefield, and at the first stations where first aid is rendered to the wounded.

I will confine myself almost exclusively to expressing my own views, and shall deem it an honor if you will consider them.

In the Italian army, the first line of medical assistance at which the wounded receive first aid treatment is the dressing stations which are established in rear of a Corps, or fraction of a Corps, with its own personnel and medical equipment. The second line is represented by the ambulance company dressing stations. The small field hospitals, of fifty beds, form the third line of medical assistance. They can be transported on wagons or on pack trains: the latter are used by large detachments who expect to see service in mountainous countries.

In other well organized armies, the distribution of the lines of assistance of the front conforms, in its principal parts very nearly to what I have already described: One line in the immediate vicinity of the fighting line, nearly always made up of the personnel and equipment of these same troops (first aid station, dressing station, place de pansement, poste de secours, *Hilfplatz*, *Truppen-Verbandplatz*, etc.); another a little farther back, made up of the personnel and equipment of the Division or Army Corps (ambulance station, ambulance, *Verbandplatz*, *Hauptverbandplatz*, etc.); finally a third line, composed of mobile hospitals (field hospitals, *hôpitaux de campagne*, *feldlazärethe*, etc.).

In the few remarks I am to make, I will consider the medical service of the front as it is organized in the Italian army.

The line of treatment in the surgery of modern warfare is governed, on the one hand, by a study of the effects of modern arms; and, on the other hand, by the general rules for the treatment of wounds, in so far as they can be applied to surgery in the field.

In attempting to discuss these two points I would exceed the limit of time allowed me, and I would wander from my subject. It will suffice if I simply state that the service of the front, today, should conform chiefly to the following postulates:

1. Apply to all wounds, as soon as possible, occlusive, absorbent dressings, to protect them from infection and mechanical injury.
2. Actively interfere in severe hemorrhages, and in all other cases where an urgent surgical operation is demanded.
3. Use every means known to surgery to prepare the wounded for transportation, so that all danger to the patients resulting from such transportation will be eliminated or at least decreased.
4. Clear the battlefield of wounded in the quickest and most appropriate manner.

Let us take as an example the medical service of the Italian army. Before we consider whether these various sanitary formations conform, in their limited spheres of action, to the above postulates, kindly allow me to make a few short remarks.

First of all it is necessary to take into account that, during a battle with modern rapid firearms, an efficient first aid treatment of the wounded is impossible; and their transportation to the first aid dressing station may be considered almost impracticable, we might say inopportune. It is certainly not in conformity with the philanthropic spirit of our times to abandon to their fate, till the end of the battle, a large number of wounded demanding prompt first aid treatment, and who are powerless to escape, by their own efforts, from the dangers of fresh wounds. "The first and greatest solace to a wounded man," says Percy, "is to be removed from the battlefield;" and whoever has seen active service has been able to verify this axiom.

For this reason, not only the regulations of all armies, but also a large number of our kind hearted colleagues, would prescribe that the surgeons and litter bearers should come up on the firing line without waiting for a momentary cessation of firing nor the end of the battle; the former, to treat grave cases, such as the ligating of a femoral or subclavian artery, the latter to remove the wounded to shelter from at least the more deadly fire. But I do not think I will need to say many words to demonstrate that all this is nothing else but a noble Utopia, not to say the greatest folly.

But I have also stated that the removal of the wounded was inopportune; it might be fatal to those with wounds of one of the body cavities; moreover, the wounded man who gets up during a battle, runs the risk of being wounded again and killed. Examples of this kind were not rare in the recent wars; Hildebrand cites the case of one soldier who, at Paardeberg, was wounded in the scapular region: he got up to seek shelter and fell again wounded by four other missiles.

But something can be done during the periods when the firing has ceased. "A lull in the fighting, or a tacit suspension of hostilities," says M. Choux, "occurs very often in actual warfare, where battles are no longer fought without interruption on the same terrain, as in the eighteenth century." And this is very true. However we must not exaggerate the importance and efficiency of the interference of the medical service in the above cases. If the firing-line should advance, and the firing continue at such a distance away that the terrain where the wounded lie would be about out of range, then the conditions would be almost the same as at the end of the fight. But if the forces remain deployed on the same terrain, the long range of modern guns, the distance which must needs be reserved for the establishment of first aid dressing stations, and finally the uncertainty of the length of the suspension of hostilities, make it impossible to bring into play a useful and efficient medical and transport service.

It would be better to form "nests," of the wounded who cannot leave the battlefield, such as Lehrnbecker and Nimier speak of with the intention of dressing their wounds and of transporting them to the ambulance stations and hospitals so soon as the firing has definitely ceased.

So, even in modern warfare (and we have a very recent example), a large and well regulated surgical clinic can only be held after the battle is ended; it is begun, often, towards evening, and continues all that night and the next day. One thing that I must mention, serves to increase the objections to any delay in applying the dressings,—objections whose importance was for a long time overestimated by attributing wrongfully to the air an

important role in the infection of wounds. This is that wherever the surgeon and his aids can not go immediately, nor at all, the wounded themselves and their comrades hasten to take his place: the result is a large number of badly applied dressings, made with dirty hands, on contact with which the wounds become infected. Not the least of the advantages of the first aid packet is the fact that it remedies, in part at least, this grave defect.

FIRST DRESSING STATIONS.—Let us now consider the function of the sanitary formations of the front, such as they are now, and such as they should be. According to the sanitary field regulations of the Italian army—which, except in a few details, conforms to that of other armies—the regimental aid station constitutes really an aid and dressing station, where, in very urgent cases, major surgical operations can be done. But the regulations also provide that the time of operating these dressing stations should not exceed that of the military engagement, because it must always follow the regiment to which it belongs.

The regimental aid station is the most discussed of any of the lines of assistance of the front.

Without a doubt the chief function of the regimental medical service during an engagement should be to promptly revive the wounded, to give them the quickest attention, and to place them as much as possible out of danger of receiving other wounds. If we consider, as the experience of war has continually shown, that the wounded on the battlefield ardently desire two things: 1. To have their thirst quenched. 2. To be removed from the danger of fresh wounds, from the trampling of the troops rushing to the assault or retreating, and from the fury of the conquering enemy, and, moreover, if we consider that there is no medical formation which can give this aid more promptly and better than the regimental aid station, then we can understand the importance of the regimental aid service, and particularly of the litter bearer organizations, well formed and equipped, and modern in every way, whose difficult and highly humane duty this is.

But unfortunately, we cannot require litter bearers to advance on the firing-line under a rain of projectiles, nor can we count on operating the dressing stations during battle. Accord-

ing to Wolozkoi's calculations they would be established in the most dangerous zone, that included between 900 and 2,100 meters from the firing-line, where fifty per cent. of all projectiles would fall; and even were they established farther off, between 2,100 and 3,000 meters, they would be in the zone corresponding to twenty-five per cent. of the projectiles. Consequently, during the transportation, the litter bearers and the wounded would be seriously exposed to the enemy's fire; the dressing station would be equally exposed to it, unless some relief of the ground or some protective work constituted an efficient shelter.

If, in addition to what we have just said, we consider the inconstancy of this sanitary line, the absence of the necessary calm and tranquility, the unsuitable places where it is most often necessary to erect the dressing station, we can easily conceive of the great difficulties which its operation meets with in modern warfare.

It is only at the beginning of the engagement, when the attack is being carried on slowly and with frequent interruptions, that regimental surgical aid to the wounded can be rendered with any success, but *without any installation whatever*, without the establishing of a true dressing station, such as the regulations prescribe.

After the battle, even though it remained very near the battlefield, the dressing station would no longer have any reason for its existence as an independent sanitary formation. It would be not only a useless but a harmful intervening agent between the battlefield and the ambulance stations or the field hospital; one could only understand its function by considering it a part of, as emanating from, the ambulance section.

I do not mean to say that the dressing station is a formation which should be suppressed. The moral effect alone, which it exercises on the troops who are accustomed to see in the regiment the unity which should exist to provide for all their wants, would suffice to justify its retention. And furthermore, the contingencies of war are such that a regiment or a battalion might be called upon to operate alone, far from large bodies of troops, and thus could not depend upon any other but its own sanitary re-

sources for the necessary aid. Moreover, I believe that in future wars, the medical resources should be scattered as much as possible, and not concentrated.

AMBULANCE SECTIONS.—The sanitary section, the Ambulance Station, properly called, constitutes, in all armies, a line of assistance to the wounded which must conform to the four postulates enunciated above as essential to the service of the front.

The regulations are everywhere founded on the idea that this line of assistance can operate regularly during the battle. This is what is expected of it: the ambulance station of a Division should be partly or entirely established when the first wounded begin to come in, or more properly, when the engagement is well defined and localized; the place selected should be protected from the enemy's fire (preferably a well constructed house); it should be as near as possible to the regimental aid stations (1,800 to 2,000 meters from the firing line), with which stations it should be continually in contact; it must be in close proximity to good wagon roads, which should not be used by troops nor by the supply trains. As is apparent, all these points are not only difficult, but, I may say, impossible of realization during a military engagement.

Moreover, the difficulties of operation which I have just mentioned for the regimental aid stations apply also to the ambulance station. The ambulance company would also find itself in Wolozkoi's zone where fall fifty per cent. of the projectiles, or at least in the twenty-five per cent. zone; and, furthermore, more exposed to the fire of the enemy's batteries than the regimental aid stations. Lehrnbecker affirms that in the war of 1870-71 the only distance at which the German ambulance companies could escape the enemy's fire and the vicissitudes of war, was from 3,000 to 6,000 meters.

Consequently, from the nature of things, in modern warfare, this sanitary formation could not operate constantly, regularly, and profitably till the end of the engagement.

Moreover if we consider the great extent and depth of the modern battlefield; the irregularity of terrain where, ordinarily, engagements are fought; the condition of the roads, which is

nearly always unfavorable to the transportation of the wounded; the fact that the Geneva Convention compels the victor to collect and treat the adversary's wounded, it is impossible not to recognize that the ambulance companies, such as they are constituted, only imperfectly fulfil the role intrusted to them.

I have made a brief calculation: let us suppose that the number of effective shots was in the proportion admitted by Wolozkoi—although this is considered by many to be excessive—a division of infantry of about 14,000 men engaged, where each combatant would fire on an average of only 100 shots, would have 1,500 wounded to be dressed, without counting those slightly wounded, and dressed before the end of the engagement by the individual first aid packet or the medical personnel of the regiments. So then, if we allow an average of fourteen minutes for each dressing (according to Henyer eight minutes are necessary for a simple dressing and twenty for a more complicated one; according to Benech a surgeon can do four dressings in an hour), we would obtain this result: 350 hours of work, at least, necessary to dress the 1,500 wounded; that is to say that an ambulance company, such as it is organized in the Italian army, would only finish its work in three or three and a half days, working twelve to fourteen hours a day, and having recourse even to the coöperation of the auxiliary personnel for these dressings.

Would the situation be any better as regards the removal of the wounded from the battlefield? No! even admitting that all the wounded of the Division, 1,200 only, were in need of transportation; even supposing that the distance between the groups of wounded and the ambulance station did not exceed an average of 1,000 meters, and allowing for the going and returning of each litter, including the loading and unloading, forty minutes and thirty for each ambulance—one ambulance section of the Italian army would take two days at least to remove 1,200 wounded, working twelve to fourteen hours per day, with all the means of transport available.

And yet in our example we have taken no account of the enemy's wounded, of which the more seriously injured would remain on the terrain in the favorable case we have just presupposed.

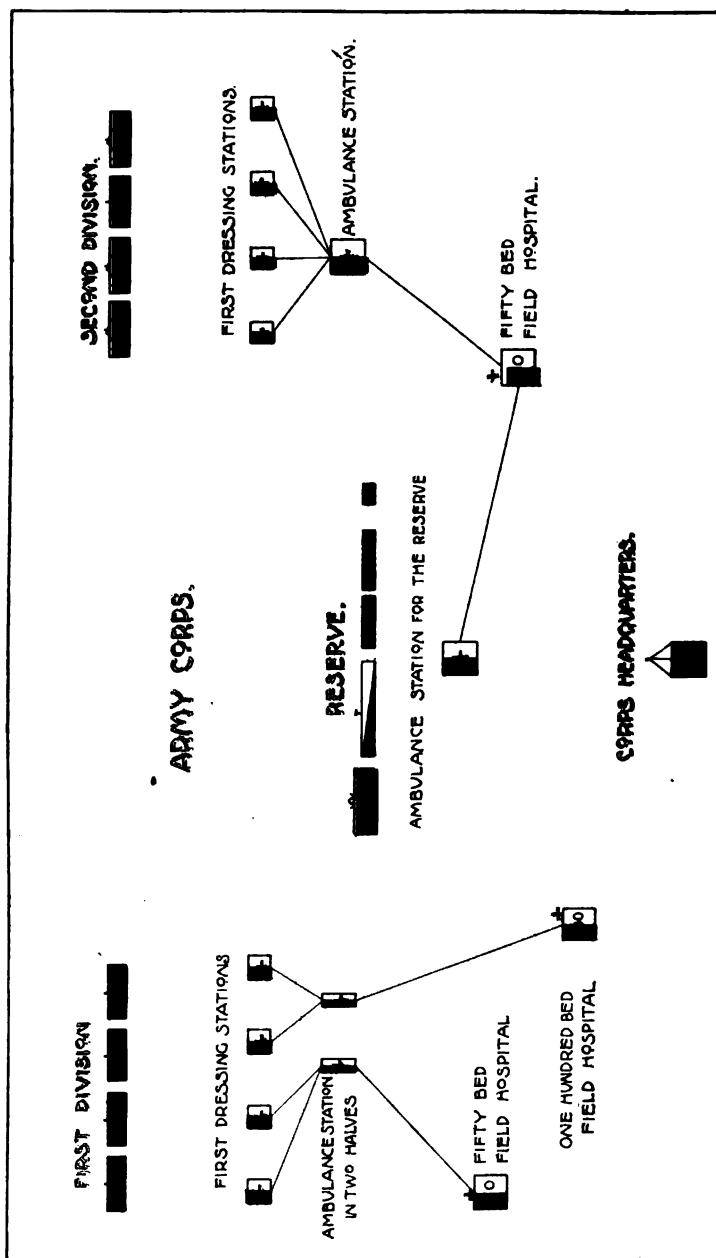
How can we improve this slow method of removing the wounded from the battlefield? Before answering this question, allow me, gentlemen, a few words:

One of the greatest difficulties of the medical service of the front results from the necessity of clearing the ambulance station, so that it can rejoin the Division to which it is attached. With this object in view the regulations prescribe that the ambulance stations should be relieved by the field hospitals which should come up, with all possible haste, on to the battlefield. But it is sufficient, in order to understand the difficulties of execution and the inconveniences of such a regulation, to consider the time necessary to establish and put into operation these sanitary formations, with their different duties, equipment and personnel. Duval asks: "How can a field hospital take the place of an ambulance company, unprovided as it is with litters, ambulances and litter bearers to remove the wounded?" And this is why several theories have been advanced, all based on the principle of the interchangeability of the medical formations of the front.

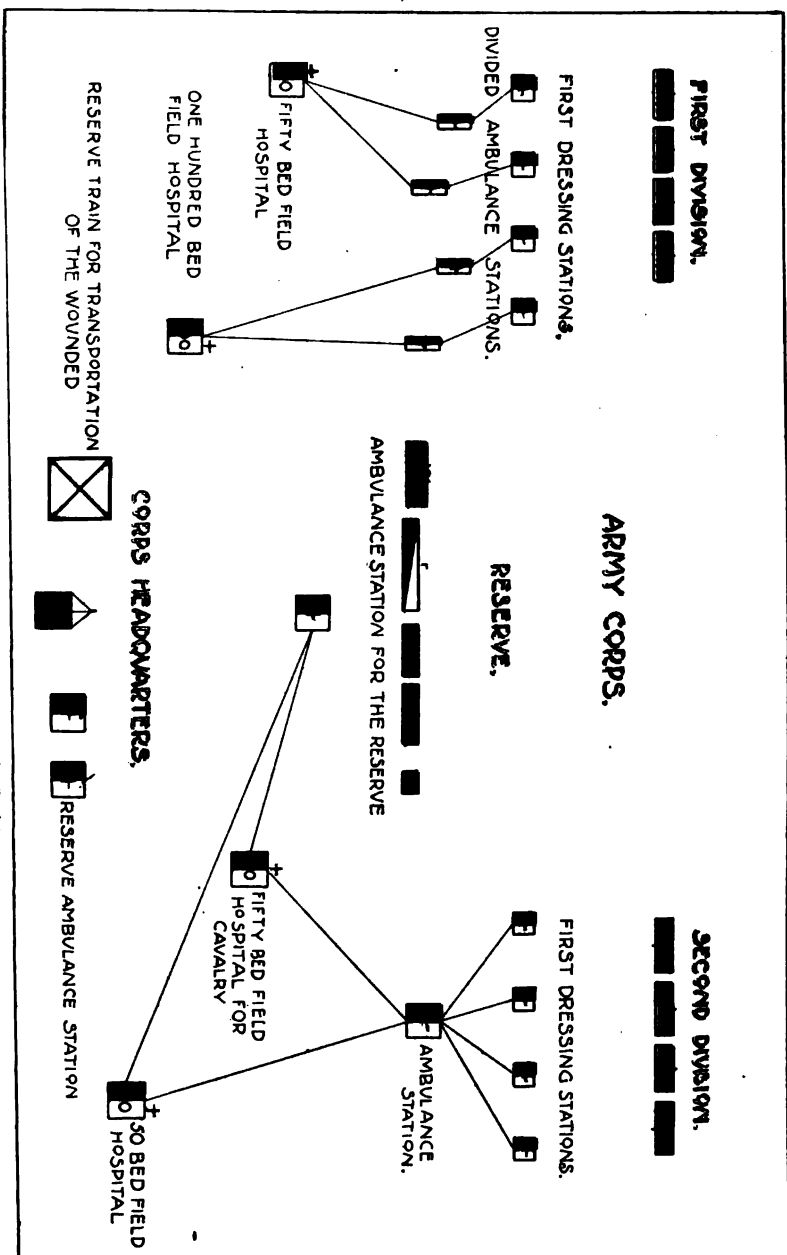
I do not intend to make a critical examination of these theories, although they are worthy of receiving serious attention. I simply express my own ideas, as follows: *It is necessary to retain all three of the present medical lines of assistance of the front, after modifying them in such a way as to better adapt them to the exigencies of modern warfare.*

The ambulance company and the field hospital each have a function and mode of operation too different, to allow of their fusion, without running the risk of committing grave errors and without forming, permit me the expression, an anomalous alliance. Some one has called the ambulance company "A packing establishment, with a shipping bureau." This appellation is not lacking in an excess of idealism, but it truly expresses the character of a transient medical line of assistance; such is the formation of the ambulance company. How can we reconcile this characteristic with that which a field hospital, which is just the opposite, should possess?

The new type, resulting from the fusion of the two medical lines of assistance, should be well supplied with the equipment



The Service of the Front in the Italian Army.



The Service of the Front with Proposed Modifications.

necessary for this double function. And then, if we wished to avoid making so unique a sanitary formation complicated, we would have to increase their number, and even organize others, such as the "Colonne de Transport" of Nimier, "Compagnies de Santé et les Fourgons du Service de Santé" of Duval. But of what advantage would this be to the service? I do not know.

Just as useless, it seems to me, would be the almost entire suppression of the medical formations of the front. To return to the time of Schmucker and Bilguer, when the surgeons and philanthropists tried, and still try to find a method of promptly rendering first aid to the wounded on the same spot where they were injured, would seem to me to be a deplorable retrogression. Furthermore, in the midst of the stormy, unlooked for events of war, could we count upon the arrival, *on the eve of the battle*, of the medical lines of assistance of the rear, however light and easily transported they were? We should not lose sight of the fact that, even in our present time, in spite of the great development of humane ideas, the sick and wounded and all that pertains to them are still the *impedimenta bellica*, as in the time of ancient Rome. But while requiring, and very justly, that the medical service should not impede the military operations, no one would consent to see this service, were it only a virtual one, not station itself near the danger line.

To reconcile the medical service on the battlefield with the idea of not leaving large bodies of troops without ambulance companies, we must choose one of two things: Either assign to each army corps a number of reserve ambulance companies, equal to that of a Division, so as to take the place of immobilized ambulance companies, or establish only one-half of the ambulance company, and make the other half follow its Division.

I come now to the last question propounded. The slowness in rendering first aid to the wounded and in evacuating the battlefield may be caused by a bad assignment and a defective employment of the personnel, or by their insufficient number. Often both these causes together contribute to this.

In order that the ambulance companies may completely fulfil their function in future wars, they should: 1. Be made lighter

as concerns baggage and equipment, to be able to proceed very close to the groups of wounded, even on a very uneven and hilly terrain. 2. Have an equipment that could be easily handled and divided into several small independent dressing stations. 3. Be amply provided with litters and ambulances; the latter of varied type, so that they may be better adapted to the different conditions of viability of the roads. 4. Finally they should have a medical and auxiliary personnel equal to and proportionate to the duties that are expected of them.

It is thus, I think, that the desideratum of Larry and Percy may be obtained: to render aid to the wounded on the spot where they lie; at the same time, the danger arising from any delayed removal of the wounded would be avoided or reduced to a minimum.

THE FIELD HOSPITALS.—The field hospitals attached to the army corps and divisions should, as is well known, be erected on the battlefield, and, as much as possible, on a line with the ambulance companies, so that they can take in the severely wounded who cannot stand transportation to a distance. Their function, then, consists in guarding against an objection, the gravity of which has been only too clearly demonstrated by the experience of late wars; I am speaking of the evils and dangers to which, on account of the length and inconvenience of transport, the severely wounded are exposed, and particularly those who have wounds of one of the great body cavities.

But the field hospitals should also possess certain well defined characteristics, in order to fulfil their function. First of all they too should be light and easily transported. It would be well in addition to equip them with a skilled personnel, proportionate in quality and quantity to the task expected of them. These advanced organizations are called upon to perform the most urgent and complicated surgical operations. How can three surgeons suffice for this? (The number allowed a field hospital of fifty to one hundred beds in the Italian army).

Besides this, the field hospitals are unprovided with ambulances for the transportation of the wounded, and have only a few litters. In order to remedy this defect, the most logical pro-

cedure would be to equip the medical lines referred to with a certain number of ambulances. Perhaps it would be possible, and more advisable, to organize a reserve wagon train, in the proportion of one to each army corps, as proposed by Surgeon General Port, requiring them first to work on the battlefield in conjunction with the ambulance company, in gathering up the wounded, and after that to proceed to gradually evacuate the field hospitals.

Another need, which is too evident to be insisted upon, is to see the field hospitals provided with shelter tents for the wounded, and with barrack tents for operations and dressings.

Finally, since it has been demonstrated that those who have wounds of body cavities, and especially those wounded in the abdomen, should be treated on the spot, or should be moved as little as possible; and, in case surgical intervention is necessary, that it should be done as soon as possible, in the first twelve hours, I would like to see special hospitals furnished for this class of wounded. After the engagement these hospitals should be able to promptly come up on to the battlefield; should be amply provided with surgical dressings and instruments, and should possess a commissioned medical personnel gifted with special skill in the technique of abdominal surgery and other major operations.

In this way alone, I am convinced, will we be able to avoid the high mortality of laparotomies, which has been obtained in late wars.

CONCLUSION.--Aseptic and antiseptic medication. An individual first aid packet, the same in all armies, and containing sufficient material to dress two wounds. An apparatus for lighting up the battlefield, both stationary and portable. The regimental medical equipment to be reduced, and so organized as to admit of establishing dressing stations easy of transportation. Ambulance companies, all of the same type, which can be subdivided into several small, aid stations. An increase in the number of these ambulance companies, or their reorganization, so that when they are immobilized on the battlefield, those that follow the large units may be replaced. A convenient increase in the personnel and means of transporting wounded. The addition

of several light wagons to the ambulances. Field hospitals to be as light and as easily transported as possible, equipped with shelter-tents and barrack-tents for operations and dressings; to have a large medical personnel, especially versed in surgery. These same hospitals should also be amply provided with means of transporting wounded, or else special convoys should be organized, to assist the ambulance companies. *Special hospitals reserved for those wounded in the body cavities*, with appropriate technical personnel and equipment.

These are the chief rules and measures which should govern the organization and operation of the medical service of the front, so that it may satisfy the exigencies of modern surgery, and the many difficult duties which present military organization and the spirit of the times impose.

This subject is worthy of the study it is receiving from military surgeons of every country. If this honorable Association will deign to give it special consideration, it will certainly add a new title to the praises it has already won.

THE QUESTION OF ALCOHOL IN THE ARMY.

DR. FREUND, of the Austro-Hungarian service, has studied the conditions under which alcohol is hurtful or useful, particularly to soldiers; also in what amounts it is to be allowed soldiers; and its effects on the army. By examples, taken from military history, he shows its harmful action; and tells how much alcohol is allowed in the ration of different nations, in peace as well as in war. Against the different properties which have been attributed to alcohol, Freund says criticism, science, and experience all show that it gives no nourishment and no endurance. On the other hand, it lessens the man's energy, as well as his resistance, both physical and intellectual. He adds that alcohol is also a serious enemy to discipline. He claims it determines more than a third of the punishments inflicted in a regiment; but he gives no statistics on this point. The struggle against alcoholism in the army ought to be based especially on good example, good counsels to the men, and severe punishments to alcoholics.—C. S. BUTLER.

THE SANITARY SERGEANT.

By MAJOR GENERAL OTIS H. MARION,

BOSTON, MASSACHUSETTS,

RECENTLY SURGEON GENERAL OF THE MASSACHUSETTS
VOLUNTEER MILITIA.

THE demands and possibilities of science, together with the high estimate which commanding officers attach to Personal Hygiene and Camp Sanitation, as the greatest factor in maintaining the physical strength of an army, leads me to enumerate some of the needs for and the duties of the Sanitary Sergeant as an important element in carrying out a plan by which the highest ideals may be realized.

A general may plan a great campaign, he may marshal his forces in battle array, but if the individual or resisting force is not fortified by a healthy body and mind, if the elements which break down an army are not abolished, then victory will not come to that army.

Every commanding officer knows how important it is to have every department in his organization under a competent head, with able assistants. This relieves him of many cares and makes the organization a power of strength and efficiency. It is impossible for a commanding officer to be everywhere at the same time. His duties are varied and complex; therefore he must seek relief through competent assistants. In what department is assistance more needed than in that which pertains to the health of the command? Look after the personal hygiene of the men and the surface purity of the camp, and you have the foundation of health, which is a bulwark of strength.

The efficiency and welfare of an army or navy largely depends on its Medical Officers. They have to decide, and their decisions are final, on the physical fitness of every officer and man, not only for commission and enlistment, but for promotion; as well as for the care of each during his term of service. They

must study his hygienic environment, keep up his physical condition to a proper standard, so that, when the country calls upon him at a supreme moment or emergency he will be found capable of responding to any duty, no matter how severe.

It is almost useless to put men into healthy and clean quarters, unless they are first taught how to keep them so, teach them the necessity, its virtue and its wholesomeness, then we can expect and demand of them to keep themselves and their quarters clean; for cleanliness furnishes an atmosphere of self-respect, and influences the moral condition of men. It is among the distinctive attributes of civilization and marks the progress of nations. As years go on and organizations are developed and strengthened, it is not too much to assume that general sanitation will be advanced to a degree not now thought possible.

In order to bring about better hygienic and sanitary conditions in the military forces of the nation, I would suggest that in each company, troop, and battery an extra sergeant be appointed as "Sanitary Sergeant." If this cannot be brought about, let one of the sergeants best qualified for the position be detailed as Acting Sanitary Sergeant. He should be intelligent, of cleanly, exemplary habits, of soldierly bearing and even disposition, and should possess the ability to instruct and control men. He will not be considered a member of the Medical Department, neither will he have anything to do with medical and surgical cases or emergencies, other than what is laid down as the duty of a soldier in "First Aid in Illness and Injury."

During the winter months a school for sanitary sergeants should be held by surgeons of the various organizations, to give instruction in all that pertains to personal hygiene and camp sanitation.

Having acquired a sufficient knowledge of his duties, the Sanitary Sergeant should impart that knowledge to his company; for no matter how perfect the knowledge of sanitation and hygiene may be, the enforcement of orders to carry out such sanitation would become irksome and difficult unless the enlisted men have some intelligent idea of what is required of them.

Either from timidity, ignorance, indifference, or prejudice, men will not volunteer testimony concerning themselves, or the evils in camp. Such testimony might be of the greatest importance to public health, as well as to the hygiene of a camp. It is, therefore, important to have some one who knows the men, who is with them all the time, and who can observe and find out defects and neglects.

There should be a book called the "Sanitary Sergeant's Book," in which should be recorded all information pertaining to the peculiarities, habits, identification marks, vaccination marks, and history of contagious diseases; in fact, a general description of each man should be made.

The Sanitary Sergeant should, also, have a pocket note book in which to note carefully and explicitly what he observes; this will enable him to report accurately.

Let it be understood that the duties of a Sanitary Sergeant are not to be irksome or laborious, but in the line of usefulness and improvement, qualification for which will place him on the list for preferment.

How often in time of war men become careless in their personal appearance, simply because they have lost their pride. A little effort on their part, guided and assisted by the Sanitary Sergeant would save many a man from homesickness and disease; therefore, under personal hygiene there should be carefully observed the bathing of the body; care of the teeth, face, hair, and feet; profanity; immoral and filthy habits; physical exercise, as setting-up drill; over fatigue; precautions against wet feet and clothes; sun, as sun-stroke; cold, as frost-bite; chronic skin diseases; diseases of the nose and ears and other objectionable and offensive diseases; attention to calls of nature at the proper time; and extermination of vermin, if any.

In camps not already established, the Sanitary Sergeant should find out where the water supply and sinks are located, and notify the men. He should have a supervision over the ditching and draining of ground about tents, ventilation of tents, airing of bedding, care of kitchen, cooking and other utensils, disposing of offal, care of sinks, drinking water and policing of camp. The Sanitary Sergeant should report, with the police detail, with baskets and rakes to the regimental or battalion officer

of the day at a stated time and place. The regimental officer of the day will then report to the field officer of the day, who at a given signal, will form line and proceed to have the whole camp ground policed from front to rear.

QUARTERS.—The Sanitary Sergeant should see to it that the grounds are kept in perfect condition, that the tents are always clean and properly ventilated; that the tent floors are clean and raised every pleasant day, so that the ground underneath can have sunlight and dry out; that all rubbish is removed from under tent floors; that the bedding is sufficient, well aired and kept clean; that the lights are properly attended to at the proper time. In case of storm he should see to it that the clothes and bedding are taken in and that tents are closed. He is also to see that sinks, bath-houses, rubbish heaps, and store houses are properly cared for. In the Cavalry and Artillery he will see that the stables are kept in proper condition, and that horses and equipment are clean and in proper form. In order to do this there must be individual effort.

CLOTHING AND EQUIPMENT.—The Sanitary Sergeant should see that the clothing is adequate, well fitting, clean and well pressed; that the linen is clean and in proper form; that changes of under-clothing and linen are made at regular intervals, or as often as may be needed; that boots fit well and are properly blacked, and brasses well polished.

FOOD.—The best system of cookery is of the greatest sanitary importance. How often troops are deprived of a great part of the natural nutriment of their food, because the company cook does not know his business, and no one to look after him! they are ignorant of the art of cooking, therefore, careful observation should be made of the conditions under which food is kept, the manner in which it is cooked and served, as well as the quantity and quality. All complaints as to food and cooking, with the name of the complainant, should be noted.

SICKNESS.—The Sanitary Sergeant should report at "Surgeon's Call" with all men who are sick or injured. The Surgeon cannot always tell who is feigning sickness and who is not. The Sanitary Sergeant can post him.

Contagious diseases might be observed by the Sanitary Sergeant long before the man would go to the Surgeon. Venereal

diseases are often concealed, either from shame or fear of publicity. The Sanitary Sergeant above all others could find out and report these cases. Body and head lice are often endured, and consequently spread among tent-mates, because, either from pride or shame, the men will not go to the Surgeon. Offensive smelling feet, noses or ears should be reported at once. The use and abuse of liquor among the men should be detected and corrected. In fact the Sanitary Sergeant should have a general supervision over the men in his company and the conditions under which they live; reporting a neglect of sanitary or hygienic rules to the Commanding Officer or Surgeon. In time of war the Sanitary Sergeant should augment the Hospital Corps and especially take charge of the effects of the killed and wounded of his own company, note down their names and addresses; if dead when and where buried; if wounded in what hospital they were placed.

On marches, sham battles and other detached tours of duty, the Sanitary Sergeant can be of great service to his command by watching out for its comforts, safety and protection, warning it against contaminated or suspicious water, excesses in eating or drinking, eating of unripe or decayed fruit, sore feet and heat stroke. He can keep the Commanding Officer informed as to the condition of the men, and advise whether the step is too quick, or the men are getting fatigued.

IN CONCLUSION, let me say whatever virtues and power there may be in a Military Force must depend for their effectiveness on a healthy body and a sound mind. The surroundings must be in a perfect sanitary and hygienic condition.

Military Hygiene has grown very much in the esteem of great leaders within the past few years, so much so, that they consider first the physical condition of their men, and the sanitary conditions of their camps, before they would attempt to plan a campaign. The most important thing of all is to start with healthy men, see that they are physically able to do the duty of a soldier. Place them in a perfect sanitary camp, with proper food, proper clothing and comfortable quarters, then by the vigilance and care of the Medical Officer, assisted by the Sanitary Sergeant, disease will be reduced to a minimum, and the fighting strength of an army increased to its maximum.

A CASE OF ACUTE TETANUS SUCCESSFULLY TREATED WITH ANTITETANIC SERUM.

By HIRAM WILLIAM AUSTIN, M.D.,

SURGEON IN THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE

JOHN Jackson; aged 19; seaman; was admitted to the United States Marine Hospital at Detroit, Michigan, on the evening of July 2, 1904, suffering from acute tetanus.

The patient was a robust man with no history of recent injury or illness. A careful examination of the entire body revealed no abrasions of the skin through which infection might have occurred; however, the patient's hands were very rough from cleaning the brass work on the ship's deck, and it is possible that the infection gained entrance through some slight puncture of the skin of the hand.

On July 1st the attack commenced with stiffening of the muscles of the neck, back and jaws, accompanied with some pain. In attempting to walk his legs would stiffen and he would have to sit down at once. Paroxysms of pain and rigidity of the muscles of the throat, neck and back occurred with increasing frequency and severity during the night of July 1st and the following day. When first seen at the hospital the patient's condition was as follows: Nearly all the muscles of the trunk, the neck, the jaw, and lower extremities were in tonic contraction. The head was drawn backward (opisthotonos). His mouth could not be opened and the patient swallowed with great difficulty. When the patient was brought into the hospital from the ambulance, he asked to be raised from the litter to his feet to relieve him from the pain in his back and this was done by the attendant who raised him to his feet by the head, the body being perfectly rigid.

Paroxysms of severe muscular spasms with pain in the back and neck occurred at intervals of six minutes during the first days at the hospital, gradually growing less frequent and less severe.

Any noise or touch or movement of his body would increase the spasms and cause intense pain. His bowels would not move without an enema, and his urine had to be drawn. Chloral and bromides would not produce sleep although exhibited in full doses.

TREATMENT.—A hot bath was prescribed, which afforded temporary relief; the patient was then isolated in a darkened ward and given a full dose of magnesium sulphate, which did not act but was followed by an enema. One gram of chloral hydrate and two grams of potassium bromide were prescribed and an order sent for tetanus antitoxin. The latter was not received until the following day, July 3d. Three injections, each containing 10 c. c. of antitetanic serum were administered during the afternoon of July 3d.. On July 4th three injections of the serum were administered. On the 5th three injections, on the 6th three injections, on the 7th three injections, on the 8th two injections, on the 9th one injection, on the 10th one injection, on the 11th one injection, on the 12th one injection, in all during the attack, 200 c. c. of antitetanic serum was administered.

The injections were made under the skin over the breasts and back and the effect of each injection was carefully noted. From three quarters of an hour to an hour after such injection the muscles became less rigid and there was much relief from pain. The patient was so firmly convinced of the relief to pain afforded by the serum he begged for it before the time prescribed although considerable pain was caused in injecting it, the needle being large.

The rigidity of the muscles gradually became less and the paroxysms of pain less frequent. On the 8th of July it is noted that they occurred every thirty minutes but the muscles of the back and abdomen are still rigid. Pain in the calves of the legs was the last to disappear.

On the 13th patient sat up in bed and was fairly comfortable. He was discharged from the hospital July 26, 1904, having made a complete recovery. During the first ten days of the attack the patient's temperature ranged between 37.4° and 37.8° C. and the pulse was frequent.

Bromides and chloral were given occasionally throughout the attack and with some benefit in quieting the patient.

The disease, I believe, is not so common among sailors as among soldiers and landsmen, and it is more prevalent in some sections of this country than others. I have seen but few cases among sailors in our hospitals and my experience with the serum treatment is limited to two cases, both, although severe acute attacks, made good recoveries to which I attribute the treatment by antitetanic serum and to careful nursing. I would also state that when it was found possible to give it a hot bath afforded temporary relief.

THE ETIOLOGY OF BERI-BERI.

BERI-BERI and Psilosis (Sprue) says Maurer, are diseases with a common cause—intoxication by oxalic acid, formed from intestinal fermentation, caused by a fungus belonging to the genus *Penicilium*, which is distinguished by its green color. This *penicilium* has been found by the author in the stools and on the walls of damp rooms. It seems to be present everywhere in nature. He arrives at the following conclusions. 1. Beri-Beri and Psilosis are caused by an intoxication from oxalic acid. 2. Oxalic acid is formed in the intestine by a *penicilium*, which is very common during the wet season. 3. The clinical forms of the disease depend on the amount of acid generated, and also on the form in which it enters the circulation. 4. The onset of the disease is aided by digestive disorders, by the unvaried and prolonged use of foods that favor the development of the *penicilium* (especially rice) and the lack of exercise. 5. The severest cases are seen after a monotonous and prolonged use of rice under circumstances that expose the sick to repeated contaminations, such as occurs in prisons, barracks, hospitals and ships. 6. During the course of these two diseases we can often observe an alteration in the liver: either atrophy or cirrhosis. This is caused by the oxalic acid. 7. Very probably many cases of hepatic cirrhosis, particularly those of alcoholic origin, are caused by oxalic acid intoxication. 8. A great number of cases of dysentery (tropical) are caused by the contact with the intestinal mucous membrane of irritating acids, produced by intestinal fermentation.—SAMUEL M. DELOFFRE.

A SURGICAL EXPERIENCE AFTER A VENEZUELAN BATTLE.

By JAMES CHAMBERS PRYOR, M.D.,
SURGEON IN THE UNITED STATES NAVY.

IMMEDIATELY after the occupation of Ciudad Bolivar, Venezuela, by the Venezuelan government forces in the early morning of July 21, 1903, the U. S. S. *Bancroft* moored alongside the water front of the city.

The splendid work of the Venezuelan gunboats; the heroic and stubborn resistance of the captured city; the equally heroic and dogged persistence of the captors; the sublime spectacle of determined men charging equally determined men; the numerous instances of individual heroism—all, inspiring as they were, could no longer engage attention.

The havoc wrought by shot and shell was apparent everywhere, and the streets were filled with debris, injured, and dead.

The agonizing groans of the suffering wounded, the putrescent corpses lying in the tropical sun, and the carcasses of animals already attracting the hungry vultures by their sickening odor of decomposition were synergistic in convincing the observer of the accuracy of Sherman's terse definition of war.

The appalling magnitude of the terrible spectacle seemed to paralyze the community, and in this city of fourteen thousand inhabitants nothing was being done, so far as could be ascertained, for the amelioration of the suffering of the wounded.

Apathy certainly was shown by many, for groups of the victorious troops were to be seen playing upon guitars, singing or gambling—seemingly oblivious of the suffering about them, and heedless of the groans of wounded lying scarcely an arm's length away in the enervating heat of a parching sun.

In a long and splendid contest they had wrested victory from a worthy foe. Elated with success and proud of such a victory

they seemed to forget their duty to the sufferers who stolidly bore thirst, hunger and pain.

Devoid of that humane impulse which finds an object of charity in every sufferer—in friend and foe alike—they were impartial to both—doing nothing for either.

The foreign residents of the city volunteered personal or pecuniary assistance, and their generous offers greatly accentuated the apathy of the Venezuelans to their own wounded.

As soon as the ship was moored the writer was requested to come at once to treat the wounded brother of Mr. Robert Henderson, the U.S. Consular representative at Ciudad Bolivar. A stray bullet had perforated his left arm and had ploughed its way downward and inward for a distance of about fifteen centimeters through the muscles of the posterior wall of the chest, finding exit near the left side of the vertebral column. These were mere flesh wounds.

Having permission and hearty cooperation of Lieutenant Commander A. E. Culver, U.S.N., Commanding the U.S.S. *Bancroft*, the writer volunteered his services to General Gomez, Vice President of Venezuela, and Commander-in-Chief of the combined land and naval forces,

The proffered services were accepted and General Gomez gave assurance that he would do all in his power to assist in rendering aid to the wounded.

It may not appear germane, but it seems proper to pay tribute here to the humane and magnanimous attitude of this victorious general toward the wounded and towards the inhabitants of the city which he had just taken in bloody battle.

A large, quadrangular, typical Spanish building having a patio, or court in the center was assigned for use as a temporary hospital. This building, formerly a court-house, contained a few chairs and three writing tables. The latter served as operating tables.

The floor was sprinkled with an antiseptic solution and hurriedly swept. Word-of-mouth requisition upon General Gomez brought a prompt and adequate supply of new blankets upon which to place the wounded. Cots were not obtainable.

Several large kettles were seized from nearby houses and were at once placed over fires which were started in the court.

It was necessary to carry all water a distance of about two hundred meters. Buckets were supplied from the *Bancroft*.

A detail of blue-jackets cheerfully and almost constantly carried water and kept the huge pots boiling.

Galvanized iron buckets (with tops on them) were filled with water and placed in the boiling pots, thus sterile buckets of sterile water were obtained and set aside to cool.

Surgical instruments were boiled in a small pot—this being more convenient than the small sterilizer aboard ship—and large quantities of sterile antiseptic solutions were prepared.

It was necessary to apply freshly boiled gauze to clean wounds in some cases as sterile dry dressings were not to be had.

While it was realized that it was next to impossible to do aseptic surgical work in such circumstances, effort was made to approximate this desideratum.

Surgical instruments, trays, medicines, and part of the anaesthetics and dressings were supplied by the medical department of the *Bancroft*.

A large, light room was selected for an operating room, and lanterns and candles were used for the work at night.

The supply of prepared food, etc., of the *Bancroft* was soon exhausted and it became necessary to draw upon other sources.

Removal of excreta was accomplished with much difficulty owing to the meager facilities available.

While preparation of this improvised hospital was taking place litter parties composed of officers and men from the *Bancroft* were rapidly bringing in the wounded. In fact, over forty wounded were brought and placed in the shade of the building before space inside could be made ready for their reception.

The zeal with which the litter parties performed their work of mercy is, perhaps, best shown by their bringing in two dead soldiers—still warm—having carried them a long distance at a rapid gait, under a burning sun, hoping that life was not entirely extinct.

One litter party arrived reporting that their burden was "mighty bad off." They were as much surprised as alarmed when the diagnosis, "Yes, he has small-pox," was pronounced.

This patient had been wounded at some time during the previous three days by a bullet, and when brought to the hospital he was in the pustular stage of variola.

Another patient, seriously wounded by a machete a day or two previous to his being brought for treatment, was delirious and in the pustular stage of a confluent small-pox. This wound severed the soft tissues of the scalp down to the periosteum, exposing a large area of the posterior aspect of the skull and severing the attachment of the ligamentum nuchae from the external occipital protuberance.

The cases of variola were isolated.

A cursory glance showed a number of the wounded to be beyond hope of recovery, and palliative treatment was begun immediately.

Hemorrhage was temporarily stopped in all cases, and then, with the faithful and efficient assistance of Hospital Steward A. T. Schwartz and Hospital Apprentice First Class Howard L. Crosby—both members of the U.S. Naval Hospital Corps—the operative work was commenced.

About 3 P. M. the medical officer of the French gunboat *Jouffroy* arrived and volunteered his services and the services of two assistants.

The writer gladly accepted the proffered aid, and also the help of three Venezuelan physicians of the local profession who volunteered.

The assistance of the above mentioned physicians and trained attendants was invaluable, rendering possible the performance of work which could not have been done but for their aid.

About two hundred patients were treated. Of these all except sixty-six required no more than occlusive dressing and after being dressed they were sent away in order to make room for more seriously wounded.

THE WOUNDS.

The wounds observed may be classified as follows:—

- (1). Shell wounds,
- (2). Machete wounds, and,
- (3). Bullet wounds.

1. SHELL WOUNDS.—Only two shell wounds were seen. Both cases were moribund.

Case A. A fragment of exploded shell struck patient's face just to the left of the mid-line, tearing away the left orbit and contents, opening the antrum of Highmore, carrying away a portion of the floor of the anterior fossa of the base of the skull with loss of a small amount of tissue from the left frontal lobe of the cerebrum. The patient, a stalwart Indian, had been almost exsanguinated, and the wound was already badly infected.

Case B. A small fragment of shell entered just external to the right sterno-clavicular articulation, fractured clavicle, upper two ribs anteriorly and comminuted the right scapula at its wound of exit.

It is not known how many ribs were fractured in the posterior chest wall. It is needless to say that pleura, lung, and subclavian vessels were injured. This patient's condition did not justify operative procedure. He was kept alive as long as possible.

These wounds possessed the features common to all perforating shell wounds, viz.: irregular wounds of entrance, larger irregular wounds of exit, great laceration of tissues and consequent severe hemorrhage.

2. MACHETE WOUNDS.—The wounds made by machetes conformed in all respects to large incised wounds with consequent severance of tissue and with results corresponding with the impaired functions of the injured structures.

It may be worthy of note that no wounds of abdominal or thoracic viscera were observed. Head, neck, upper extremities, and back were the sites upon which machete wounds were seen. With scarcely an exception these wounds were infected.

3. BULLET WOUNDS.—A very few wounds were observed which were evidently caused by small calibre, high velocity bullets. In each of these cases the patients were found on the water front, and it is believed that the wounds were received from riflemen or rapid fire guns on the Venezuelan gunboat *Bolivar* when she boldly steamed close along the river bank and poured a murderous fire immediately into the streets.

Most of the troops on both sides (so it is stated) were armed with old style Mauser rifles and used forty-five calibre soft lead bullets driven by black powder, and frequently at very short range; consequently most of the bullet wounds were of a type already fully described in military surgical literature.

The few wounds inflicted by modern small calibre firearms presented a striking contrast with these made by the antiquated small-arms borne by most of the combatants.

This contrast gave incontrovertible evidence of the more humane effect of the modern small calibre bullet upon human tissue.

Comminuted fracture—usually of most horribly mutilating character—accompanied nearly every case in which the lead bullets struck osseous tissue. The fragments of fractured bone especially if compact tissue were wounded, proved powerful adjuvants to the destructive action of the missile, and when the wounds were perforating, large, irregular, lacerated wounds of exit were produced.

Bullet wounds of the extremities and flesh wounds constituted far the larger proportion of bullet wounds. This was probably due in part, to the fact that no ambulance was available and most of those wounded in the head, chest, or abdomen were left to their fates in the tropical jungle in which they fell.

For the same reason fewer wounds of the lower extremities were observed than of the upper extremities—especially were there fewer *fractures* of the lower extremities seen.

Large blood-vessels seemed to escape injury by the leaden missile in an almost miraculous manner.

It is believed that their escape from direct bullet injury was due to:—

- (a) mobility of the vessels,
- (b) the forcing aside of the mobile vessels by the compressed tissue mass preceding the on-coming bullet,
- (c) the position of the limb when injured,
- (d) the amount of muscular contraction present when the injury was received,
- (e) the resistance by the body weight of the injured man,
- (f) the large sectional area of the bullet, and
- (g) the low velocity of the missile.

In several cases large vessels were lacerated by fragments of fractured bone, but no case was seen in which it was believed that a large vessel had been directly injured by a bullet even when the vessel appeared to lie immediately in the track of a flesh wound. Large haematomata were usually present in cases of injury to large vessels.

Joints were wounded in several cases, viz., shoulder, elbow, and ankle, fracture being present in each case.

These joint injuries caused by antiquated firearms were treated conservatively by modern methods, and it is regretted that results are not available for report.

In one case the chest was penetrated near the junction of anterior axillary line and fourth rib. The wound was septic. Pneumonia was present. This is the only case of bullet injury of thoracic viscera seen, but several cases of flesh wound of chest wall were treated.

It was noted that the abdomen was perforated in one case and penetrated in five instances. These six cases were all in the throes of a well-advanced general septic peritonitis.

The case of perforation was wounded by a small calibre bullet which entered the left side fracturing the ilium near the highest point of its crest, passed transversely across the cavity fracturing the right ilium slightly posterior to the highest point of its crest. This patient died in a convulsion within an hour of the time he was brought for treatment. A post-mortem examination would have been of interest, but it was neither practicable nor advisable in the circumstances.

Moist gangrene was seen in one instance. Amputation at the surgical neck of the humerus was performed. This patient walked in, of his own accord, and requested amputation.

In this experience just as is seen elsewhere in the field of medicine and surgery the bizarre and unusual were encountered.

One patient complaining of much pain presented a wound of entrance over the left rectus femoris muscle. The track of the bullet was through the soft tissues, upward, outward and backward to a point just below the crest of the left ilium and about six centimeters behind the left anterior superior spine. At this

point the bullet could be felt deeply embedded in the soft tissues about twenty centimeters from the wound of entrance.

When the bullet was removed, the exploring finger detected several free, hard, sharp-edged, irregular masses, which were believed to be fragments of either lead or bone. One of the largest of these fragments was removed, and upon examination proved to be neither lead nor bone, but *glass*.

The wound was thoroughly cleared.

When the patient had recovered sufficiently from the anaesthetic he was questioned, and he stated that a glass bottle was in the left pocket of his trousers, and that the bottle was broken by the bullet.

An equally interesting case is one in which a flattened soft lead bullet was removed from about the middle of the shaft of the humerus, having lodged against the bone in such manner as to extend approximately one-third of the circumference of the unfractured bone.

How the missile retained enough force to tear its way through the triceps muscle and thus spread itself about the humerus without fracturing the bone seems inexplicable.

The following remarkable nervous case merits attention:

The patient, an Indian aged about twenty-five years, possessed a less vigorous appearance and poorer physique than most of his fellows. The bullet entered the muscles of the back about the level of the ninth dorsal vertebra and slightly to the right of the spine. The missile became spent under the skin of the right postero-lateral aspect of the chest wall. The spinal canal was uninjured. Patient insisted that both arms and both legs were paralyzed, and remained in this mental state for several hours. So far as could be observed there was no motion of the extremities during this time, but immediately upon removal of the bullet under local anaesthesia he arose and walked away!

It is regretted that this paper can contribute nothing new to the field of military surgery or medicine.

The chief aim in narrating this experience is to invite attention to the fact that the Venezuelan army is without a medical corps, hospital corps, or ambulance of any kind.

There was no medical supervision of recruiting. Several of the wounded were boys scarcely large enough to handle a rifle without staggering under its weight.

No provision was made for the treatment of the sick.

Prophylaxis and hygienic camp management seemed unknown.

Infectious diseases were neither isolated nor quarantined.

No provision whatever, so far as could be ascertained was made for the first aid, transportation or treatment of wounded among those whose bravery and persistence were to maintain the integrity of the Venezuelan republic.

It was stated that sick or wounded were left where they fell on the march or in action.

If strength sufficed to carry a patient to some nearby habitation his chances of recovery were correspondingly better. From a source believed to be absolutely trustworthy it was learned that those obviously mortally injured were frequently dispatched by their comrades rather than left to suffer and starve.

While this seems incredible the informant is thought to be a man of unquestioned veracity and is in position to know whereof he speaks.

In the battle of Ciudad Bolivar about eight thousand men were engaged on both sides. The most conservative estimate of casualties was *twelve hundred*. It is not difficult to believe that this estimate is approximately correct, for more desperate fighting is scarcely possible.

A number of the combatants, especially among the defenders of the city, were driven to more furious action by liberal drinks of rum or brandy.

In such wholesale slaughter and wounding of men the red cross—that emblem of mercy—was nowhere visible. The humane seems to have been entirely overlooked.

Such an appalling oversight—if such it was—appears almost impossible, yet the untold suffering and unnecessary loss of life bear silent and reproachful testimony of this unfortunate omission.

EXPERIENCES OF A NATIONAL GUARD REGIMENT IN
CONNECTION WITH THE COMBINED REGULAR
ARMY AND NATIONAL GUARD MAN-
OEUVERS AT MANASSAS.

BY CAPTAIN VERTNER KENERSON, A.M., M.D.

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ASSISTANT SURGEON IN THE 74TH REGIMENT, N.G.N.Y.; LATE
ACTING ASSISTANT SURGEON, SPANISH-AMERICAN WAR; AT-
TENDING SURGEON, ERIE COUNTY HOSPITAL; CLINICAL
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IT has been the custom in the National Guard organizations to have the privileges of a tour of "field duty," unless for some unusual reason they have had its equivalent in some other form of service, as for instance, strike duty, or an extra amount of parade duty as did the regiments in Buffalo during the Pan-American Exposition. This tour of field service has been enjoyed usually within the confines of the state and on alternate warm seasons of the year.

Early in the year, 1904, the seventy-fourth regiment as a whole and especially the commanding officer began to look for some place in the vicinity of Buffalo for a favorable place to conduct a so-called "practice march." A little later an invitation came from the headquarters of the National Guard at Albany asking if the regiment would like to participate in the Manoeuvres that were being planned to take place at Manassas, early in September and the reply was, I believe at once returned that the regiment would be glad to take part and arrangements were at once begun. All the equipments were gone over very carefully and any parts that were not in perfect condition were made so at the earliest possible date, and the commanding officer required for certain articles that were not in the regular equipment of the regiment, in general, and specifically required for certain new

equipment, that was to be issued to the National Guard regiments on account of the application of the "Dick Bill" to the new reorganization of the Armies of the United States.

This, so far as the Medical Department was concerned, included the supply of such things as were really necessary for the care of sick and injured which every medical officer had wanted for years and yet had not found the articles on the list of supplies. This particularly applied to hospital furniture, bedding and equipment in general including two new orderly medicine cases that had been needed for a long time and which contained a small dressing case with a few instruments, and with a small supply of tablets such as one might need on a march or on the train, thus avoiding the necessity of always having on hand the cumbersome chest that is issued to the United States Army as well as to the National Guard organizations. These supplies in general consisted of a proper number of nice folding cots, a suitable supply of sheets and blankets, a travelling commode, an ample supply of towels, and the little conveniences of civilization that make life comfortable and which we are all so accustomed to that we feel very uncomfortable when we need them and they are not at hand. These articles were all contained in proper receivers so that they could be packed and shipped without danger of loss and with minimum danger of breakage. There was also supplied a filter that supplied a small amount of drinking water and which could be used for hospital purposes but there was not enough to supply the whole regiment.

The regiment as a whole was supplied with the new olive drab uniform and with the khaki uniform that they have had for the last year and in addition took the blue shirts and the officers carried the "braided blouse" now a part of the dress uniform.

Each officer carried a trunk and his bed roll consisting of folding cot, blankets, sheets if he uses them, and a small pillow.

The men carried their "little all" in their blanket roll which was to be carried on their shoulder. These rolls consisted in general of the personal belongings of the particular soldier, of a double blanket, of a shelter tent (one half) with the necessary tent poles and pins and the rope necessary to set the tent up. These were all rolled as the regulations require with the shelter

tent on the outside and with the tent poles laid lengthwise of the roll. The men also carried a "haversack" in which they carried the ration and in which they had their travel ration.

They also had the poncho in the haversack which is slung from the shoulder. The Hospital Corps men had to carry in addition to the above either a Hospital Corps pouch or an orderly pouch containing a considerable amount of dressings and of medicines such as might be demanded of an assistant in case of any real injury resulting to any one of the command.

The Medical Officer in addition carried the usual heavy operating case that contained the major operating instruments assigned to the medical men by the State of New York. This all of course went to make up what is known to all military men as "heavy marching order."

These shelter tents were for the purpose of "bivouacking" at any given place for the night where any given maneuver might demand such a continuance in place; besides the shelter tents we carried the usual amount of tentage that is assigned to our organization.

In the case of our regiment we have always used the conical tents but several other regiments in the same camp as ours were using the small wall tents for the men and the large wall tents for the officers.

Each man carried with his travel ration the usual mess kit consisting of the tin cup, the meat can, which of course can be made up into a frying pan if necessary. Thus with the shelter tent, and with the mess kit each man could set up house-keeping and have the house and all at any particular place the situation demanded, provided he had brought with him the requisite amount of rations.

Our regiment left Buffalo on Friday morning, at ten o'clock leaving in three sections over the Lehigh Valley railroad. The regiment took with it from Buffalo the entire amount of rations required for the officers and the men took whatever they intended to buy from their company fund, and then drew from the Commissary at Manassas those things of a perishable nature that they could not carry from Buffalo. In each section from Buffalo

there was supplied either on the start or left for one section to pick it up by the following a sufficient amount of travel rations to care for the men on the way down. Coffee was made for the officers and for the men on the train by a man under contract. We left the city at ten o'clock in the morning and reached the siding at Manassas about six o'clock the next morning making a very fast run. There were no stops made except such as were necessary to take on new engines and to secure water and to pick up the rations that were left for the following sections by the first. When we reached the siding at Manassas we were met by the adjutant of one of the organizations which had already preceded us, Mr. Sinclair, and were at once shown to the spot which had been chosen as our particular camp.

The commanding officer was given a plan for the camp that differed from the ones that we had been accustomed to pitch for ourselves at the state camps, and at the practice marches. The "cook shack" was placed at the end nearest the officers' quarters and the sinks for men were placed at the other end of the company streets. There were some small sinks placed at the back of the quarters for the officers that were for their special use. These sinks were on higher ground than were the rest of the camp, but the sinks had been sunk by the government contractors to a depth of six feet so that there was no question of the sinks draining into the water supply. Furthermore the water supply had been arranged by the Government so that the supply was furnished at each company street in a "spigot" so that there was little water carrying to be done and there was no surface water used. The sinks had been surrounded by the contractors with a supply of pine boughs from the surrounding woods, but they proved to be so inflammable that almost without exception the coverings of the sinks were burned when the Quartermaster and his assistants were attempting to burn out the sinks as it is recommended to do, as well as disinfect by the use of lime, when they are to be cleansed, or after the manoeuvres.

The water supply had been figured out on the basis of four gallons for the use of each man and an extensive plan of boring wells and having a tank system supply the pipe lines extending

not only to the company street but also to the supply of shower baths had been arranged by the Government contractors before we had arrived.

These shower baths were, at our camp, four in number and consisted of a large hospital tent pitched over the elevated pipe line that furnished the spray attachment of the shower. Each had a slanting floor and was arranged so that the men could disrobe at the other side of the tent and that without any necessity of getting their clothing wet. There were two small shower baths for the officers at the end of the street back of the officers' quarters.

We arrived at Manassas at about six o'clock in the morning and the camp was pitched as directed by the supervising director; and the camp was that day very carefully policed even to the pulling up of the weeds and cleansing every part that might be a source of discomfort to the men for any reason afterwards. The men then rested until Monday morning finding Sunday a very hot day the temperature running up to 104° in the shade and we, from the North, finding it extremely hot.

When night came all was changed and there was an "abundance of coolness," so much so, that we all required two blankets, but were very comfortable if we had that number. The dew was very heavy and we found that when we started in the morning that our shoes were wet through and soaked, and remained so for about two hours.

There were no rainy days while we were at Manassas and one of the inhabitants told us that there had not been any for about six weeks.

There had been some sort of crop on the ground that we occupied as a camp, and there were *some* fields of ungathered grain but not many; in fact all the crops, practically, that the regiment saw, consisted of corn and that did grow and very high. I rode a horse that is sixteen hands high and the corn grew so high that in some parts of the corn fields that we went through I could not reach the tops of some of the stalks of corn. I used to read of the corn at the West that grew so high that a man could ride through the corn and lose his way and not be seen by any one a

few feet away from the place where he was riding. I never had seen such high corn before. The corn was not all in such flourishing condition and in many places it was evident the fertility of the ground or the irrigation ran in particular strata and in the near neighborhood there would be found a not inconsiderable amount of small corn stalks which were stunted or never had a fair start. The other crops had for the most part been gathered and the grass was tinged with a great amount of red dust, and was somewhat dried but not necessarily browned except for the dust.

The dust is a red clay dust such as was seen by those who lived for a time at Camp Alger in 1898 and clings very tenaciously. The roads are always very deeply covered and it is not an exaggeration to say that the dust on the well travelled roads was at least three inches thick and very fine. When one put his foot down in the road with any attempt to make the dust fly a cloud would rise at once to the level of the man's head and that with each step.

If we had had the additional experience of having a small amount of rain added to the difficulties already presented we should have had a hard time indeed. It would not be a hard task I am convinced with the roads and the dust as described to have carried on each man's foot at least a pound of mud.

Shortly after our arrival we were asked by the Division Surgeon to furnish a list of our equipment to the surgeon-in-charge including our personnel of both medical officers and enlisted men including non-commissioned officers. These were furnished and immediately we were given an order through the channels to send at once to the base hospital for field hospital purposes one medical officer and eight hospital corps men. This was complied with although it caused some little difficulty to arrange the details of sending, as was required, the rations for the men when we were thus summarily ordered from our camp with rations and equipment.

On the Monday after the camp was pitched, the regiment as a whole was ordered out to partake with the rest of the Brigade in a Brigade drill which the men all enjoyed very much. The surrounding country, as our guide told us as we were coming into

our camp, was all alike, and in our manoeuvres it was frequently difficult to say whether we had been in this particular field before as one field looked much like any other. This first Brigade drill was not hard on the men and every one came back with simply a new zest for their supper.

"War was declared" on Monday night at twelve and in the first problem we were in the attacking army, "blue" army, wearing our old khaki trousers and our blue shirts. We started at about five o'clock in the morning after a hasty breakfast marching in directions and ways that were not intelligible to the "pawn on the board" but the pedometer showed that we had moved during the day, up to three o'clock when hostilities were suspended, about seventeen miles. Here we bivouacked for the night very much scattered and with the greater part of one battalion on the brow of a hill the greater part of the other battalion in the woods about one half a mile away. Our regiment was in the advance guard during the first problem and in the rear guard during the working of the second problem.

We were much scattered, and so far as could be I remained with what for the moment seemed to be the greater part of that battalion and the other surgeon who remained with the regiment (the third one having been sent to the field hospital) kept with what for the moment seemed to be the greater part of the other battalion. Not infrequently however it would be found that what I had supposed to be a battalion would be found to be a mere handful of men.

Each man brought in his own haversack the ration that he consumed the whole of Tuesday (save the scanty meal in the morning before we left camp) and the whole of Wednesday up to supper which we secured after we got back to our camp. A small amount of coffee was made by each battalion after hostilities were suspended on Tuesday and the men pitched their shelter tents and made themselves as comfortable as they could on the ground. Officers did the same but did not have any shelter tents.

Water was very scarce, all the wells at neighboring farm houses were promptly exhausted and we were seventeen miles from our camp water supply. The farmers were of a kind that

we seldom see up in the North, in that they welcomed us at once, wanted to do much for us for nothing or at a small return. For instance at this first bivouack the forage did not arrive and it looked as if the Quartermaster would not find us, and as I had my own horse with me, and was fond of the horse as well as knowing that he must be cared for or he would not carry me, I tried to get feed and pay for it. The farmer did not have *any* feed of *any* kind but offered to go into his cornfield and cut for me stalks of this splendid corn, each stalk with a full and almost ripened ear of corn on it, for the use of my horse at *one cent* for each stalk. Likewise we asked his wife if she had any preserves that she wanted to sell us, and bought all she had of apple marmalade and pitted cherries at twice the price she was willing to sell them for. She wanted twenty cents for a two quart jar of pitted cherries that were luscious and very cheap (saying nothing about our necessity) at fifty cents.

There were a few cases of diarrhoea, a good many of sore feet, but not nearly the number that developed the next day when we covered about twenty-three miles. There were no heat cases.

Right here it is worth while to note what was to be done with the men who had been foolish enough to come down with new shoes or with shoes that fitted so loosely that they promptly developed blisters. The ambulances in this as in the following problem were with the "base hospital" or with the field hospital for we did not see one until we were most home. In our State manoeuvres we have always had a "regimental" ambulance under the direction of the surgeon of the regiment. In this case the ambulances were all centralized, and we never saw them at all consequently we could not do as we would do in a state manoeuver—put them in and let them ride—but had to arrange some way so that they could be gotten to continue with the regiment and to get them back to camp. If a man complained that his feet were getting sore and that he thought he would have a blister soon, he was told to take off his shoes and stockings and wipe his foot as dry as he could with his stocking and then the foot was drenched with stearate of zinc and the foot gear returned.

If after this, and it was not infrequently ineffective, the blister actually appeared and filled with water or with a bloody fluid, then—following the custom of the regular men who had experience in this matter—the bleb was opened and emptied on the side, and then a piece of adhesive plaster was applied completely encircling the foot and wide enough to more than cover the area of the blistered spot and right over the blister. Then the outside of this adhesive was drenched with the stearate of zinc, the stocking was returned and the man told to march on which he could do very comfortably. This was usually good for twenty-four hours and then the place had to be dressed antiseptically in which process not infrequently the raised skin would be loosened, when the man could not be marched as well as in the first place, but in the meantime we had gotten back.

There was little if any poison ivy. I did not see any.

On Wednesday we finished this first problem by marching three miles further and then the twenty miles back. There were many stragglers, perhaps two hundred out of our 550, but from tire only; there were no severe cases of sickness and all reached camp after a while.

The men arrived back at our own camp from three to six o'clock and every one took a bath and arranged to be as comfortable as possible as it was known that the new problem in which we were to be on the defensive was to be started at midnight. In this problem the fighting was to be approximately in the territory on which both the battles of Bull Run were fought and the distances to be covered, marching from our end of the camp, were comparatively short. The regiment started at daylight and bivouacked as before from three o'clock to midnight, when we were ordered to take up a new position; and this time our new position was on the Henry farm, right on the crest of the hill where the major part of the fighting took place in 1861 and 1862.

The men got some coffee after three o'clock on this day and whatever food they brought with them, but not any warm food.

There were few men who had to fall out on this march and these were mostly those who, on account of the lack of water, had to eat apples to keep from being thirsty; of course they took the apples from the trees and they were not fully ripened.

On the second day of this march the action was decided and the men came back to camp in very good condition, although in both of the problems they had practically not found any fresh water for their canteens all day. It is surprising how slow men are to learn the lessons of such problems as presented themselves to the men in this action. Notwithstanding the limited amount of water on the first day—every one practically going without it for the twenty-four hours except for a little obtained from the houses—no one except one Captain thought to have sent from the camp with the Quartermaster's wagon any water for coffee the next afternoon.

One thing more,—after it was evident to us all that although hostilities were over every day at three o'clock and it was the regular thing for us to move at midnight on the same night, yet no one or practically no one laid down promptly at three o'clock to sleep until called to turn out say at eleven o'clock. Every one stayed up and told small stories, wished for water and cursed the commissary and the quartermaster. All should have gone to bed except those who were detailed for guard duty or other similar service.

One thing more,—when I was at Fort Myer in 1898 there were an abundance of mosquitoes there on every night and I thought there would also be a lot of them at Manassas, but I did not see or hear one while I was there and no one reported any. There was mosquito netting in plenty in the camp; I think one net was used on the last day in the hospital for flies but that was all.

We were ordered to break camp Sunday morning early to go to the paymaster's tent near the siding and receive our pay; we did, and waited twelve hours at the siding and on ground that had been used for similar waiting for the twelve hours before we got there, and most of it apparently having answered for public sinks, whereat every one cursed loudly. I think the fault was with the single track system—but that wait was tiresome.

We were paid for eleven days service but drew, I think, but nine days rations—even the ninth day was an afterthought—and if it had not been for a liberal supply of company funds to buy milk, etc., on the train back some of the men would have been short.

MEDICATION ON THE FIRING LINE.

By WILLIAM F. WAUGH, A.M., M.D.,

FORMERLY ASSISTANT SURGEON IN THE UNITED STATES NAVY.

HOW has the Medical Department of the Army utilized the resources of modern medical science in providing speedy aid for the soldier? It is obvious that the sooner a wound or other emergency receives attention, the better for the patient. Men may and do die of hemorrhage, of sunstroke, of exhaustion, of collapse, who might be saved by a quick application of quickly-acting remedies. Men may be disabled by intense emotion, by diarrhea, vertigo, syncope, cerebral congestions and anemias, and other causes. Shock is common.

There seems to be practically no effort to supply aid to the men "on the firing line," beyond the simple but useful package of dressings arranged to provide "first aid to the wounded." The army regulations require that on the march or in battle each medical officer be habitually attended by a mounted private of the Hospital Corps, designated as his orderly, who carries as you know a pouch containing:—Aromatic spirits of ammonia, gauze bandages, chloroform, catheter, tags and pencil, "first aid" packages, sublimate gauze, jackknife with saw blade and corkscrew, ligatures, catgut and silk, a mixture of chloroform and opium, pins, adhesive plaster, rubber bandage, scissors, wire gauze for splints, hypodermic syringe and tablets, and a pocket case containing the usual assortment of instruments. Each member of the Hospital Corps also carries a pouch containing aromatic ammonia and apparatus. The medical officer usually carries only his pocket case of instruments.

Excepting the unnamed contents of the hypodermic case, the medical man nearest the firing line, then, has no medical agents available except the ammonia and the mixture of chloroform and opium.

Aromatic ammonia is a rapid acting, diffusible stimulant and antacid. It is liable to speedy deterioration by evaporation; the cork of the bottle is apt to get loose, or to be blown out by the gas liberated by the heat of the body, and its effects at best are but transitory. The dose is a dram, and 100 doses would therefore require a bottle holding twelve and one-half ounces. Each dose also requires the addition of eight ounces of water; so that the 100 doses necessitate fifty pints of water, which somebody has to carry, as one cannot count on its procurability when needed. Add to this the glass or other vessel from which the dose may be drank, and we have a matter of over fifty pounds to be carried, to render available 100 doses of this remedy. Being a fluid, it is quite liable to be spilled, or the bottle containing it to be broken, when the contents are lost. For 1,200 doses the weight to be transported would approximate 750 pounds.

Word for word, these objections apply to the mixture of chloroform and opium, which otherwise is a valuable combination, meeting many of the emergencies apt to arise on the field of battle. These two remedies therefore necessitate, for 100 doses each, the carrying to the firing line of a matter of over 100 pounds. Besides, nothing more perishable than these two can be found in the materia medica, excepting amyl nitrite.

I have by me a small case containing twelve vials, each carrying 100 active principle granules, each of full dose—1,200 doses in all. The weight when filled is three ounces. The case can be carried in the vest pocket with ease. The granules require no water, but can be slipped into the mouth and masticated, and from them the effect, and a true, sure effect, is obtained within a minute or two. No water is needed. The dose is thus rendered available much sooner than a hypodermic injection could possibly be prepared and given—a procedure always difficult on the firing line, whereas a granule dropped into a man's mouth to dissolve and be absorbed *in situ*, or in the very act of swallowing, is very easily accomplished.

Let us see what resources we have in this little case:

Glonoin, the speediest of stimulant remedies, acting even more quickly by the mouth than when given hypodermically;

opening the blood vessels and thus rendering more speedy the action of any other remedy given with it. It is the best remedy for cerebral anemia, syncope, chill, shock, vertigo when due to anemia of the brain, etc. This agent has so many emergency uses that it has been termed by enthusiastic admirers "the life-saver."

Atropine the remedy to sustain and prolong the effects of glonoin in sending the blood to the head; also to the skin, where it is retained rendering this the most efficient of hemostatics. When death is threatened by hemorrhage, the brain anemic, much of the blood already lost, the impounding of much of the balance in the brain and skin leaves but little to flow through the bleeding orifices. This renders atropine effective in spite of its vasotensor effect. Indeed, the writer is not alone in deeming it the most powerful and generally applicable hemostatic at our command, and especially in hemorrhages from wounds. Atropine is a revulsant, withdrawing the blood from the internal organs and powerfully forcing it into the dilated capillaries of the skin. It is the chief remedy for choleraic attacks, cramps and every form of spasmodic pains, vesical tenesmus, cerebral anemia, syncope, shock, chill, ocular and many other forms of headache, as well as other affections too numerous to mention. Its powerful sedation of the pneumogastric nerves is only beginning to be appreciated, as rendering it the great remedy for such excitation of this nerve as is shown in the choleras.

Strychnine is the greatest of stimulants. There is more value in a single dose than in that whole bottle of ammonia. Heart, lungs, brain and every function of the body, are alike revived by this priceless remedy. Whatever doubt one may have as to the real stimulant powers of alcohol and ammonia, there is none as to those of strychnine. Even as an antispasmodic it has its place, especially when combined with glonoin and atropine.

Morphine does so many things, and does them so well, that it cannot be omitted from such a limited collection; though there is probably not a solitary use to which it can be put, but that a better remedy can be found in a full collection of remedies.

In aconitine and veratrine we have the most powerful of rem-

edies for fever, cerebral congestion and sunstroke, that can be carried. The two allow a nice discrimination; the first for milder forms, the latter for more severe; aconitine the quicker in action, veratrine when the eliminants are clogged. Veratrine also relieves the sense of muscular fatigue, and may be used to dissipate the symptoms of overexertion. When hemorrhage exists with excited heart-action and tense vessels, these vasomotor relaxants find a place as speedy and reliable remedies. Congestive headaches give way speedily to either of these.

Hyoscine hydrobromate, when injected with morphine, forms one of the safest and most effective anesthetics known, and may be used when the chloroform is spilled or exhausted. It is the quickest and most powerful of hypnotics, acting sometimes in a few seconds, affording sound and restful sleep, from which the patient may yet be awakened more readily than from morphine.

Potassium permanganate, compressed pure, into quarter-grain scales, may be of great value when only infected water is available. It may deserve a place here. As a dressing also it may be needed. A scale dropped into a glass of water may render the latter safe for hypodermic use or for drinking.

For the remaining four vials a selection may be made according to the preference of the surgeon, who may desire another hemostatic like cornutine, digitalin or hydrastinine; a cholagog like colchicine, calomel or emetine—the latter of especial value also as a hemostatic, and as a hypnotic for alcoholics; quinine arsenate, of which a grain practically equals fifteen grains of the sulphate as an antimalarial; caffeine to relieve fatigue; cocaine for the same purpose and as a cardiac tonic, and to relieve the sense of thirst when water is not available; pilocarpine to break up chills, combat erysipelas, etc. But these are mostly remedies for the hospital in the rear; and for the actual uses of the firing line it is likely that the four vials may be better utilized to carry more strychnine and atropine. A granule devised to replace the liquid chlorodyne might also well have a place. The one I would suggest contains morphine, cannabis, hyoscyamine, oleoresin of capsicum, oil of peppermint and glonoin.

We have here instead of bulky incompetency, an absolutely

dependable vest-pocket arsenal of potent agents, whose field covers every emergency likely to occur on the firing line. That the presence of such a case, in the hands of a medical officer who could use it wisely, would save lives for which no provision is now made, seems beyond question. No apparatus, no water, and no weights or measures, are required for their administration—simply the patient and the doctor, or his aid, to insert a granule within the lips. When desirable each of these granules may be given hypodermically, they containing nothing except the naked alkaloid, and sugar of milk as the excipient. Even such an accident as spilling and mixing the granules need not greatly interfere with their use, for they are from drug content, or can readily be made, of different colors and therefore readily distinguished.

Compared with the present preparations for the emergencies of the firing line the latter seem rather archaic.

During the proceedings of this meeting mention has been made of the desirability of increased rank and emoluments for the surgeon. And this is no more than simple justice—the surgeon should have these, and I hope he will fight for them, “tooth and toenail,” and especially with the head, until he secures his rights. But this paper of mine seeks for something more—in fact it touches the sorest point with the surgeon. Heretofore he has been chained to the rear by relentless Duty, while his comrades swept past past him on their way to the front. Place in his hands this little case, let him realize the tremendous therapeutic possibilities in the little giants it contains, and no general order, no further hint, will be needed, to put the surgeon where his heart has been—in the thick of it.

DISCUSSION.

LIEUT. COL. JOHN V. R. HOFF: I have listened with interest to Dr. Waugh's paper. I believe there are some valuable suggestions in it, but he labors under a serious misapprehension in regard to the medical armamentarium of the medical corps of the army. We have on the firing line practically all of the remedies he suggested, and more.

MAJ. L. L. SEAMAN: It might be interesting to note the statement of one of Japan's surgeons in regard to his estimation of the actual causes of death on the field from shock or hemorrhage. He stated, upon what au

thority I do not know, that he believed eighty-five per cent of the men killed in action died from hemorrhage and not from shock.

COL. JOSEPH K. WEAVER, N.G.Pa. I enjoyed the paper. It is suggestive of what can be done in emergencies, when time, space, and efficiency are important. The suggestions offered by Dr. Waugh are very practical in their character. It is a subject to which I have given some thought, and the principles involved I have carried out in the medical and surgical cases which are used in the medical department of the Guard of Pennsylvania. Liquids should be eliminated from the Hospital Corps pouches, and so far as possible from the medical and surgical chests. The substitutes for aromatic spirits of ammonia are found in atropia, caffeine and nitroglycerine. Tablet triturates are good substitutes for the more compact and hard compressed tablets. The advantages are quick absorption, therefore quick response, convenience and ease of administration. There is much room for improvement in our therapeutic armamentarium.

EMOTIONAL ICTERUS IN A SOLDIER.

A SOLDIER, on receiving notice of his being sentenced to the guard house, had a slight vertiginous attack, became pale, and immediately his face turned yellow. No symptoms were present except the yellowish tint to the skin of the whole body. Dr. Gazin (*Archives de médecine et de pharmacie militaires*) diagnosed it as a case of emotional icterus. Opinions differ as to the cause and pathogenesis of this disease: Hagen says it is hematogenous; Tessier that it is biliary; Guerbe that it is caused by a latent hysteria; Kelsch that it is microbic in origin; Douillet has demonstrated that an increase in pressure in the biliary ducts drives the bile into the hepatic veins; Potain declares that sudden impressions act on the abdominal plexuses and produce a dilatation and paralysis of the vessels of the liver, the blood pressure being lowered an exosmosis takes place from the biliary ducts to the blood vessels; Daraignex says it is due to a spasmodic contraction of the biliary ducts, and a vaso-dilatation of the abdominal veins causing a diminished pressure in the branches of the portal vein.—SAMUEL M. DELOFFRE.

THE SURGEON OF THE NATIONAL GUARD.

By MAJOR RALPH W. MONTELIUS,

SURGEON IN THE NATIONAL GUARD OF PENNSYLVANIA.

THERE is not in the public service of the federal government a position that is attended with as many complications as that of the surgeon of the National Guard.

In the nine years that I have been connected with the service eight with the National Guard and one in the United States Army, my experience has been such as to permit me to write upon this subject. We are generally appointed from civil life; this was my experience, and I found the initiative duties somewhat embarrassing as the conditions at the time of enlistment were very different from to-day.

If you will kindly permit I will try to entertain you by giving my experience before the examining board. I received my commission on the 11th day of July, 1895, and was assigned to the eighth regiment of the National Guard of Pennsylvania and ordered to report to camp at Mt. Gretna, Pa., on July 25th. Not having any military training prior to this, I was up against a big proposition. I found the routine work very strange, but with the coaching of my brother surgeons did fairly well until I was ordered to appear before the examining board; as the time drew closer I became nervous.

No doubt the majority of all present are aware of the complexion of the boards; all ranking medical as well as general officers were present, and question after question was propounded and all disposed of satisfactorily until the last and final one, when I was asked the first and most important duty of the medical department in an emergency or riot call, I admit I was staggered but after hurried reflection remembered an answer to a similar question in my final examinations at college,—knowing the result of the call was doubtful, I thought the most important

matter was the stimulants for the officers: Whereupon the commanding officer informed me my answers were satisfactory and adjourned the board to meet at my quarters immediately. Having been previously advised, I was prepared to entertain.

The first active duty of real camp life was performed at McAdoo, Pennsylvania, in September 1897 when the major portion of the third brigade of the National Guard of Pennsylvania, were called into action by a riot due to the coal workers' strike. Twenty-five Hungarians were killed by deputies, and their sympathizers formed an army and threatened the lives of all residents of the district.

On arriving at the point where we were to camp we found the territory covered with scrub oak and rock. We made a very hurried inspection and located the sink lines where there was the least danger of infection from improper drainage. This was the most important of all duties as there was no telling how long we were to be kept at this camp. The digging was very difficult owing to the rocky formation, as we were in the heart of the anthracite coal fields. Our sink lines were closely watched by our sentinels as the greater portion of the enlisted men are indifferent to camp sanitation and unless the surgeon is ever on the alert they are apt to violate the most necessary precautions and defaecate outside of the sinks and infect the water supply.

I might here remark that out of a regiment of enlisted men you will find the majority will require more watching than the same number of school boys.

Our tour of duty lasted twenty-four days and our sick list was less than one-half of one per cent; I think this low percentage was due to the very strict camp duty, as we were in the enemy's country and no one was allowed to leave camp except by order of the commanding officer and no vendor of food or drink could enter. While on this subject let me say that if all camps are strictly guarded the duties of the surgeons will be greatly modified.

In 1902 we were again called to service by another riot, and the tour of duty lasted ninety-one days; like the former camps our orders were strict and as a result our sick list was less than one-half of one per cent. I might state that our regiment ran a first class canteen which was under the direction of the medical officers, whose duty it was, to inspect daily the quarters as well

as the vessels used in the dispensing of the wares, and as each and every man was limited to five checks per day there was no excessive drinking and as a result the health of the camp was excellent.

It was my privilege to serve throughout the Spanish-American war, with the volunteer regiments. We were mobilized at Mt. Gretna, Pennsylvania, in April 1898, the worst season of the year, as it rained almost continuously for fourteen days but, under the same strict camp duty, our sick list was very small, and this offers sufficient evidence that if camp discipline is maintained the general health of the enlisted men will be improved.

On the seventeenth of May following we were sent to Camp Alger, Va., where new duties were in store for us. This was a camp of detention where the men were supposed to be conditioned, but the corps of vendors of edibles and drinkables were innumerable and licensed by the government. They sold every thing from ginger pop to wood alcohol; the latter was the cause of three deaths in one night in our hospital. The food that was offered for sale would surprise a county fair,—as a result typhoid and enteric fevers developed, and the death list can be seen by consulting the reports of the adjutant general's office.

The surgeons that had served in the National Guard, were handicapped by the existing conditions and many deaths were due to this unfortunate state as they were not given sufficient medical stores while in this camp.

I was detached from my regiment and ordered to the field hospital to the store house department, as property officer, and found the duties very similar to running the linen department of a first class hotel.

Later I inspected all beef and bought all commissaries for the diet kitchen and finally was appointed as summary court officer, and held daily seances at two P. M., when I tried all the criminals of our department, Imagine, if you can, those of you who have not served in this capacity, a physician in full military attire holding criminal court. Many very funny things happened, and I often wish I had kept my notes.

Returning to National Guard matters, another feature presents itself at this time; we are compelled to carry on our sick

list at each camp members of the various companies who present themselves with broken bones, who are unable to perform any of the camp duties, thus handicapping others as well as entailing additional expense on the state. Others who are suffering from various diseases are brought also. I would suggest that several days prior to the movement of the troops, each member of every company should be examined by a surgeon or a commissioned officer in order that none may go into service except he be in good physical condition.

Another thought,—I will refer to a custom that has been in vogue in the National Guard of Pennsylvania, ever since I have been connected with it. That is the keeping the sink lines in a sanitary condition throughout the entire day. I am of the opinion that after the morning inspection by the medical officers it should be the duty of the officers of the guard and of the day respectively to see to this. There is not an annual encampment that we are not called upon three or four times a day to clean up our lines both kitchen and lavatory. It seems to me that the surgeon should be looked to as more than a cess pool officer.

The social duties of the surgeon of the National Guard are very peculiar as you are all aware, and to discharge them to entire satisfaction of the rank and file is no easy matter. In private or home life many of the men are on the same social and financial plane as the surgeon, and we cannot be as severe as the regular establishment, as it would cost us friendship and dollars.

Our positions at home are often trying; the section from which we come is largely inhabited by the immigrants of foreign countries through whom our strikes have originated. As I am surgeon for one of the largest producing companies of anthracite coal I am compelled to attend many who are employed by them; after my return from tours of strike duty I have been compelled to carry a brace of pistols for months for protection, and to this day I am frequently called the "bloody strike doctor" by those who have not forgotten the slaughter of their comrades as they call it in 1897, 1899 and 1902.

The social side of camp life is decidedly pleasant as we of the eighth regiment are a happy family and the hours off duty are pleasantly passed and our little "pink teas" are ever to be remembered.

THE USE OF MOTOR WAGONS IN THE MEDICAL SERVICE AT THE FRONT.

By DR. H. MARESCHAL,

PRINCIPAL PHYSICIAN OF THE FIRST CLASS IN
THE FRENCH ARMY

TRANSLATED BY LIEUTENANT C. J. BARTLETT,
MEDICAL DEPARTMENT, UNITED STATES ARMY.

THE main indications of the Medical Service at the front are:
1st, Picking up and dressing the wounded, under the most favorable conditions of rapidity and asepsis;

2nd, Removing the transportable wounded as promptly as possible, to avoid crowding the dressing stations and field hospitals.

1. The first result can be obtained but by the rapid assembly, at a point indicated, of a sufficient personnel and material.

Assuredly, the medical personnel of each regiment is all assigned to dress its wounded and concentrate them, as far as possible, about the dressing stations. But the regimental personnel and material will almost always be insufficient; let us also believe, that they will be, from the commencement of action, reinforced by the elements belonging to the Division Field Hospital, which will need to be modified in consequence.

As the Brigade seems more and more to become, in the future the true tactical unit, it is necessary then, that the Division Field Hospital can promptly and at all times, send as near as possible to the dressing stations, no longer the simple ambulance, but elements mobile and rapid, recalling by their object the *flying ambulances* of Larrey.

We propose then to add to each Division Field Hospital two motor wagons intended to transport rapidly, in the proximity of the two brigades, the emergency personnel and material of a section of a Field Hospital, leaving to the main portion of this Field Hospital the time to take its place at the rear of the Divi-

sion. These vehicles would also serve in evacuating at once, to the last stopping place on the march, the greatest possible number of wounded thought transportable.

In case the division should be composed of three brigades the number of automobiles should be increased to three.

2. The urgent necessity of removing the wounded to a distance does not need to be discussed, it results from the following considerations:

The possibility of a return on the offensive of the enemy; a slackening of surgical activity on account of the excessive number of wounded; delay in the care and attention by the attending surgeon, a delay on which depends the prognosis of the wound and often the life of the wounded.

With the present ambulance, the rapid removal of the wounded is impossible. Without doubt the laborious and perilous transportation of wounded fallen in the field can never, except under absolute contra-indications, be avoided; without doubt, also, the present ambulance drawn by horses will be preserved to convey to the Field Hospital those to be treated there; but the presence of one or several motor wagons on the nearest road permit the wounded being rapidly transported over a great distance (10 to 20 kilometers), to the vicinity of the last stopping place on the march, where Field Hospitals (of Army Corps) could receive them.

To obtain, in the matter of rapid evacuation, a normal method of working and a practical efficiency, the two automobiles of the Division Field Hospital would not suffice. We propose, therefore, to give a similar vehicle to each sanitary formation of an Army Corps.

In Summary:—The judicious employment of motor wagons by the Medical Department, by means of well combined relays, would assure the evacuation of the Field Hospital of a rapidity unknown to-day. It would prevent their overcrowding, so prejudicial to the interests of the nontransportable wounded; it would place the wounded who have been moved in the most favorable conditions for their prompt recovery and consequently for their reentry into the ranks.

It would give, in one word, satisfaction to strategic desiderata as well as to humanitarian exigencies.

TRANSLATOR'S NOTE.

These motor wagons are not to replace entirely the present ambulance, but to be used particularly to evacuate dressing stations and Field Hospitals rapidly and remove their patients to the hospitals further in the rear.



French Army Motor Ambulance.

Any means at our command which would so greatly aid in relieving congestion in these places during field operations and transport our wounded promptly and rapidly to the larger and more permanent hospitals in the rear is worthy of adoption in our own service. The objection most frequently reiterated against the use of such motor wagons, and which can only be refuted or sustained by actual demonstration, is the poor condition of our roads, their scarcity, and our rough country.

Contemporary Comment.

INSTRUCTIONS WITH REGARD TO HEAT STROKE ON MARCHES.*

TRANSLATED BY MAJOR CHARLES F. KIEFFER,
SURGEON IN THE UNITED STATES ARMY.

II. FOR MEDICAL OFFICERS, ETC.

1. NATURE OF THE SICKNESS.

Under heat stroke we understand a general sickness, developing in a few hours, under conditions affecting the heat balance of the body. It is characterized by weakness of the heart muscle and the respiratory muscles or by profound alterations in the character of the blood or metabolic changes, leading to apoplectic-form appearances and occasionally, as well, to a fatal issue.

The earlier view that an abnormal accumulation of the self-formed, bodily heat could lead to this sickness and even to death,—in other words, that the patient perished from overheating of the blood, or in a measure from heat intoxication, leading to paralysis of the heart,—is no longer tenable.

Heat stroke therefore in the separate stages of its course does not present by any means the same clinical picture but consists of a series of different pictures related to each other or one developing out of the other.

It is difficult to separate, absolutely, heat stroke from sun-stroke (insolation). The latter results from direct exposure of the unprotected head or neck, to the rays of the sun, and may lead to a disease of the membranes of the brain with its sequelae (meningitis, acute hydrocephalus). It is quite apparent without any further argument, that this local disease has nothing whatever to do with the general disease known as heat stroke. Sun-stroke can only occur when the naked head is exposed to the direct rays

*Translated from the Official German Army Text Book for and published by the courtesy of the Second Division, General Staff, U.S.A.

of the sun while heat-stroke may occur under a cloudy, sunless sky.

2. ETIOLOGY OF THE SICKNESS.

According to Hiller two forms of development of the disease are identified.

A. HEAT STROKE IN CONSEQUENCE OF PROLONGED STAY IN HIGHLY HEATED AIR WITH LITTLE OR NO MUSCULAR EXERTION, HENCE IN A CONDITION OF REST.

This occurs (1) in the tropics; (2) in the boiler or engine rooms of steam ships; (3) in prolonged exposure of the *clothed* body to the heat of the tropical sun, e.g. on ships.

The development of this form of heat stroke depends either:

- (a) On the abolition of the function of heat dissipation, or
- (b) On alterations of the composition of the blood, withdrawal of the sodium chloride and alkaline salts by the sweat secretion or in the cessation of the urinary excretion and the accumulation of urinary constituents (uremic form).

This form of heat stroke is not likely to be encountered in the land forces.

B. HEAT STROKE AS A RESULT OF SEVERE MUSCULAR LABOR IN MODERATELY WARM AIR, HENCE IN A CONDITION OF PHYSICAL EXERTION.

This occurs, (1) in military marches in our climate; (2) in mountain climbers and field laborers; (3) in pack and draught animals.

For the development of this very important form of heat stroke, as a disease of armies, the following points must be considered.

- (a) The increase of heat production and the disturbances of heat dissipation with their consequences.

The marching infantryman with full equipment on a war footing develops three to four times the heat quantity existing in the body of a man at rest. Now while as a rule in a condition of rest, heat production and heat dissipation balance each other, this balance cannot possibly be maintained in soldiers marching in warm air. The three or four fold heat dissipation necessary

thereto is prevented by various means. The military clothing, the increased temperature, the quenching of thirst with water and the diminished movement of air, the heating of the clothing as a result both of the increased bodily heat and the sun's rays and finally the saturation of the clothing with sweat all play a part in preventing heat dissipation.

The evaporation of the sweat, with coincident renewal of air, favors bodily heat dissipation best of all. When however the air is itself relatively moist (sultry, storm-air) and when it moves but little (calm, marching in woods or cities) then evaporation of the sweat likewise fails.

Together with these misproportions in the body heat balance, of the greatest practical importance in the development of heat stroke are:

(b) Disturbances of the action of the heart and respiration.

It has been statistically determined that of 435 soldiers suffering from heat stroke, 421 or 96.8 per cent were afflicted with general muscular debility, debility of the heart-muscle and weakness of the accessory muscles of respiration. As prolonged marching, with full pack, already makes great demand on the cardiac activity and, as it increases the acid consumption in the muscles which are at work three or four fold, in those with weak hearts it happens even under ordinary circumstances, on cool days, that clinical symptoms of cardiac insufficiency appear. The weaker the heart the less blood is pumped in a given time through the blood vessels of the head and the less the amount of the blood in the skin circulation, and therefore the less is the dissipation of heat through the skin. At the same time the relative emptiness of the arteries supplying the skin and its structures means a material diminution of the function of the sweat glands in secreting nourishing material or excreting wastes. The secretion of sweat becomes less or is entirely suppressed. With the emptiness of the arterial circulation there follows a congestion in the lesser circulation; the demands on the heart increase and its insufficiency is hastened and aggravated.

The fourfold increase of acid-need to supply the muscular effort can only be disposed of by the most vigorous respiratory

effort and that means both more rapid and deeper breathing. This increased effort calls upon the accessory muscles of respiration which, by persons of sedentary occupation and quiet mode of life, are usually in an untrained condition. On the march in heavy pack, these muscles have to endure for several hours the most strenuous and uninterrupted effort. The fatigue of these muscles and, in consequence thereof, the danger of CO₂ poisoning for the body occurs all the earlier in proportion to the degree in which respiration is hindered by:

- a. Anatomical obstructions to breathing.
- b. A heavy pack burden.
- c. High temperature, great humidity, calm.

Finally there must be held responsible for the occurrence and gravity of heat stroke:

C. ALTERATIONS IN THE COMPOSITION OF THE BLOOD AND IN METABOLISM BOTH PHYSICAL AND CHEMICAL.

The sweat secretion which may amount to as much as four litres causes a drying of the tissues particularly the skin, muscles, liver, kidneys, etc. The blood itself is very little altered as far as its concentration is concerned. On the other hand carbonic acid, phosphoric acid, alkalies and earthy salts as well as sodium chloride are taken from the blood and lactic acid, sugar and decomposition products of albumin (uric acid, urea and similar products) are added to it. In severe cases, in addition to the decomposition of albumens, in their further course we may see degeneration of the cellular structures, muscles and nerve substances as well as lytic changes in the coloring matter of the blood (hemoglobin) and in the cellular structure of the blood corpuscles (stroma).

With a simultaneous interruption of the urinary secretion, there occur in the classes of cases sketched under C, clinical pictures which are entirely suggestive of uremia.

3. SYMPTOMS AND COURSE OF THE DISEASE.

The lighter forms of the disease, in which it does not progress to a loss of consciousness, pass under the guise of "march-faintness" or "military exhaustion." On hot, close days these

cases must be regarded as the forerunners of true cases of heat stroke.

The more severe cases are divided, according to the etiology as given, into two subclasses. The first and most frequent, although luckily the least severe; appears as a sudden severe insufficiency of the heart and respiratory organs (asphyctic form): the second (paralytic or dyscrasic form) developed out of the profound blood changes, corresponds in the main, to the clinical picture of uremic coma.

The prodromes of all the forms are the same; they are, excessive sweating, pronounced tiredness and noticeable malaise. The head and the skin in spite of the sweat feel hot. The man feels frequent oppression in the chest and has a feeling of faintness and as though he were going to fall (march-faintness). If under these conditions the march is interrupted the acid balance is restored by deep breathing, the bodily heat is lowered (through dissipation from the skin) to the normal and the sick man recovers.

But, if the man does not fall out but continues to drag himself along in the column, as a rule the heart and respiratory insufficiency are rapidly augmented. The pulse becomes smaller, weaker and very rapid, the breathing, likewise, rapid and superficial. The amount of blood in the skin becomes less, the skin becomes pale and, through cessation of the sweat, dry. Saturation of the clothing by previous perspiration may obscure this condition of the skin. The color of the face especially about the lips and ears, not infrequently becomes bluish (cyanotic). Through the diminution of acid matters in the blood, degenerations occur in the cerebral and spinal centers which are noticeable as disturbances of locomotion (staggering and tripping), in diminution of the acuity of the special senses (not hearing when spoken to or called), and in loss of consciousness; until the man breaks down altogether and lies senseless and motionless. The occurrence of twitching in the face and limbs completes the clinical picture. In these cases as a rule, the breathing is very shallow and intermittent, the pulse cannot be felt and the bodily heat is increased. The examination of the heart reveals rapid, superficial and poorly defined sounds.

If the patient, in this condition, receives proper treatment which is to be directed to stimulating the action of the heart and respiration, he can usually be saved.

But when no adequate medical care is available or when the man before he completely broke down, had forcibly dragged himself along in spite of prolonged insufficiency of the heart and respiration, the paralytic or dyscrasic form of the disease may develop. It is characterized by a complete suspension of the functions of the brain, abolition of motion, sensation, reflexes and heat regulation. Sweat and urine secretion are extinguished; severe tonic and clonic convulsions occur, that might be very easily confounded with epilepsy. Here, too, the pulse and respiration are intermittent; there is frequent vomiting and involuntary movement of the bowels. In the time shortly before death (agony) the temperature frequently rises and may reach 43°C. (108°F.) or even higher.

A third form of heat stroke is accepted by many, the psychopathic, which should be classed among the exhaustion neuroses and is apt to occur in required conditions particularly under the influence of alcohol.

Between the various types indicated there occur many transition and mixed forms.

4. PREVENTIVE MEASURES WHICH THE MEDICAL OFFICER SHOULD RECOMMEND TO THE RESPONSIBLE TROOP COMMANDER.*

A. GENERAL MEASURES.†

- In order to shield troops marching in the heat, from heat-stroke, it is advisable to so arrange the march that the men are spared the greatest heat of the day, the noonday heat. As soon as the temperature early in the morning reaches as high as 25°C. (77°F.) in the shade, it is desirable to make at least purely travel marches so that the men may get to quarters early. As soon as the marches are combined with manoeuvres this preventive measure will frequently not be practicable and then other preventive measures must be applied.

*The carrying out of the precautions concerns the troop commander and he is responsible.

†The military measures which in general are to be taken in conducting marches on hot days, are considered.

Care must be taken to see that the men have sufficient sleep. Before the march out the men should have breakfasted and drunk sufficiently and the canteens should be filled. For this latter purpose alcoholic drinks must be forbidden. Then too, as substantial a lunch as is possible should be carried along. On the march itself, marching in closed columns is to be avoided; it will be much better to march in the most open formation possible, with extended intervals. Occasional change of the head of the column is advised so that the different companies may, in rotation, march at the head of the column.

Early opening and airing of the clothing should be permitted. Halts should be made oftener and longer than on cool days and, whenever possible, in shady, airy places. The men should be permitted to lie down. If the men are falling out frequently or if general fatigue of the troops becomes noticeable, a rest in the open field in the sun is preferable to attempting to reach the quarters without further rest, even though they be near.

It has proven most useful to send orderlies forward in advance of the marching troops who must see to the preparation of water in the towns, which are traversed, or in other adapted places. In long marches, in regions sparsely watered, the necessary prearrangements must be made, or better still the necessary supply of water must be carried along.

The troops' surgeon should give brief instructions to the orderlies who are to be sent forward (these had best be cyclists), concerning the halting places where a supply of potable water is to be had.

Drinking when in a heated state does not harm the soldier if he keeps in motion. It is not advisable to pour large quantities of cold water at a time into the stomach. The water introduced into the stomach needs time, often as much as five minutes before it can affect the nerves and produce the sensation of satisfaction of thirst.

Refreshing additions to water are permissible as well as infusions of tea or coffee. On the other hand alcoholic drinks should be absolutely forbidden on the march.

If the marching column is accompanied by a mounted medical officer he may, with the authorization of the commanding officer, from time to time betake himself to various parts of the column in order that he may in an inconspicuous manner observe the men on the march. In this way it will be possible all the easier, to recognize beginning cases of sickness. Further, it is the duty of the surgeon during the march itself to bring timely recommendation of measures that seem advisable to him, to the attention of the Commanding Officer.

Long halts at the rendezvous for the purpose of distributing billets are to be avoided as much as possible; it will be much better to distribute them on the march because it is a matter of experience that soldiers who have kept themselves buoyed up by the nearness of the goal and have dragged themselves to the rendezvous frequently fall down at that point.

B. PARTICULAR MEASURES FOR INDIVIDUAL CASES.

Just to what extent men who are unaccustomed to exertion or those who have become unaccustomed to it (as mobilized troops or men who have been in arrest) shall be utilized in the hot seasons, must be left to the responsibility of the troop commander. When the question deals with men who have been ill or those who need particular sparing, the surgeon should make the necessary recommendations concerning their service for extended manoeuvres.

5 TREATMENT OF HEAT STROKE.

In the first place it must be said that a routine treatment entirely directed to reduction of the high temperature is not indicated. Since we know that the danger to life in heat stroke does not lie in the high temperature but rather in the disturbances of the heart action and respiration it is necessary that the therapeutic plan must be adapted to these conditions primarily and from case to case according to the rules of science.

Men who have only suffered from "march-faintness" without losing consciousness should be brought out of the column and taken to a cool or at least an airy place. By means of the recumbent position, removing the pack, opening of the clothing, giving water, and in a few necessary cases Hoffman's drops, the

pulse and respiration will in a short time, strengthen to such a degree that the man according to the conditions may slowly reach his quarters, may attach himself to the baggage wagons or in favorable cases may even join his command.

The asphyctic and paralytic-dyscrasic forms of heat stroke demand, as the first remedy, no delay in taking measures to restore the disturbed breathing and to relieve the acute cardiac insufficiency.

The disturbed breathing must be regulated by artificial respiration as the most important means, unless there should be some contraindication, such, for instance, as the increase of convulsions with every motion. The manoeuvres for artificial respiration as usually described in the instruction book for sanitary soldiers, and as already described in these Instructions on Heat Stroke for Officers, may be modified so that one man works on each side of the patient grasping one arm with both of his hands. The two men then must make the movements exactly simultaneous. This way of applying artificial respiration is much less tiresome for those carrying it out and can be continued for a long time but it will only lead to good results when the men work equally. These manoeuvres, then, should only be done under medical supervision. In addition to the artificial respiration, cold stimuli should be applied in the form of douching or sprinkling; or cool, or even iced, bandages should be applied. All of these cold stimuli at the same time expedite heat dissipation and so lower the temperature of the patient. If they are too long continued however, particularly in severe cases, they may cause symptoms of collapse.

To increase the activity of the heart, ether or camphor injections are useful; ether may also be used together with other cardiac stimulants. In addition in plethoric, particularly in heavy persons, where there is marked congestion of the arterial system and consequent fear of brain or lung edema, the question of blood-letting may arise.

Care should be taken for as early a replacement as possible of the fluids taken from the body by the perspiration. As long as the patient is unable to swallow the attempt should be made

to introduce the fluid into the body by means of rectal injections of water at the body temperature, or better still .6 per cent sodium chlorid or sodium chlorid-soda solution—

Sodium Chlorid	6.0
Sodium Carbonate	3.0
Sodium phosphate	1.5
Potassium phosphate	1.0
Magnesium sulphate	0.5
Water to	1000.0

In all cases of extended manoeuvres the surgeons must see that they are provided with the necessary instruments (Pravaz syringe, lancet, rubber tube with connection, small funnel of enamelled iron) and the necessary medicines (besides the powders necessary for making the injections weighed out in doses, there should be ether preferably in sealed tubes, oil of camphor or better still a solution of ether and tr. digitalis or one of equal parts of ether and tr. strophanthus). Internal remedies for the reduction of heat can usually be dispensed with. For severe periodical spasms, narcotics should be used (morphine and chloroform). Retention of urine should be met by catheterization.

If the transfer of the patient to a near-by hospital is possible the question of subcutaneous or intravenous injection of large quantities of fluid may be considered.

Even when there is distinct improvement, heat-stroke, patients should be carefully watched for a considerable time. The further stimulation of the sweat and kidney secretion by the administration of large quantities of fluids, namely coffee and lemonade remains indicated.

INCUBATION IN MALARIAL FEVER.

THIS has been for a long time (*Le Caducée*) the subject of special research, and the majority of the authors place it at from ten to fifteen or twenty days, with a minimum of five or six. Major Billet, in the military hospital of Constantine, has just published the results of thirty-one observations which corroborate the above statement. In the majority of his cases it was between ten and fifteen days with a minimum of six days, and a maximum that never went above twenty-four.—
SAMUEL M. DELOFFRE.

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Editorial Expression.

THE FIRST AID PACKET.

CONTINUED use of the first aid packet confirms the opinion as to its value held hitherto. We illustrate forms used in the British and Spanish services and those now issued our own Army. The British packet is one and one-fourth by two and one-half by five inches and contains a wool pad, a square piece of gauze and a piece of water-proof, together with bandage and pins for holding in place. It is covered by a piece of gray muslin upon which a paper label, containing instructions, is pasted.

The Spanish dressing is one and three-eighths by two and three-fourths by five inches. This particular specimen was recovered from a Spanish vessel after the battle of Santiago. It is covered by a firm gray drilling and its label is printed upon paper pasted upon the outside. Its contents consist of two pledgets of styptic cotton, each about one and one-half inch in diameter and one-fourth inch in thickness, a compress of cotton and gauze, a piece of protective, a two inch gauze bandage and a triangular bandage of the usual form, together with safety pins, but not illustrated. These are placed between two bits of bristol board and wrapped in a piece of oiled paper, upon which is pasted a label containing the instructions for the use of the elements of the packet, and the whole wrapped again in the outside cover.

The American packets are the latest form and are of two kinds; the larger, one and one-eighth by two and one-fourth by four and one-fourth inches; and the smaller, one and one-fourth by two and three-eighths by three and five-eighths inches. Both contain the same constituents, viz., two antiseptic compresses of sublimated gauze in waxed or oiled paper, one antiseptic bandage of a sublimated gauze with safety pin, and one triangular band-

age, with illustrations of the methods of application and safety pin.

The latter form contains also a paper label with directions, and is covered with a transparent and impervious covering of celluloid.

The former is covered by a piece of rubber sheeting with the cloth side out, upon which is printed the list of contents and the directions for use. Before wrapping, the elements of the packet are compressed by hydraulic pressure and, after the application of the cover, the packet is sealed with cement as tightly as possible and dipped in varnish. It is then hung in a hot oven to dry, and this process is repeated daily for from six to ten days until the coating is from one sixty-fourth to one thirty-second of an inch thick. The varnish employed is of special composition, such as is used in the preparation of the manufacturers' (the J. Ellwood Lee Co.) woven flexible catheters, and is tough, elastic, water-proof and not susceptible to climatic conditions.

INSTRUCTION IN HYGIENE AT WEST POINT.

IN the editorial note in connection with the article by Lieutenant Robert Smart upon "Military Hygiene, its Theoretical and Practical Study in the Regular Army and Militia Forces," it was stated that, "a medical officer has been placed upon the faculty at West Point." This statement, the editor regrets to say, is incorrect. The medical officers on duty at the Academy are now as they always have been on the Military Staff of the Superintendent. They deliver lectures to the Second Class on military hygiene, and in July and August lecture upon first aid and litter and ambulance drill to the First Class, accompanying the work with practical exercises. They are not, however, members of the Academic Staff nor the Academic Board, nor do they have a voice in the teaching work of the Academy. It is greatly to be desired that the recommendations of the Association of Military Surgeons at its last meeting be carried out at an early date by placing a medical officer upon the faculty, with the rank and prerogatives of full Professor and by extending to hygiene the full importance to which modern experience increasingly shows it to be entitled.

THE ROYAL ARMY MEDICAL CORPS MEMORIAL OF THE SOUTH AFRICAN WAR.

THE British Royal Army Medical Corps is erecting by subscription a handsome memorial to their comrades who lost their lives during the South African War. The design is well shown in the illustration. The material is of Cornish granite, the obelisk consisting of a single piece. There are fourteen bronze tablets on which the names of all ranks who fell during the campaign will be placed. The bass relief shown in the cut and the lions supporting the column are also in bronze, the material for which it is hoped to obtain from old guns. The figures in the group are about life size and will be most imposing in effect. When completed it will stand upon a commanding site near the R.A.M.C.



Royal Army Medical Corps Memorial to its Members who fell during the South African War.

Mess at Aldershot. The total expense of the memorial will be about sixty-five hundred dollars.

News of the Services.

NEW MEMBERS.—The following officers of the several services were elected to membership at the last quarterly ballot of the Executive Council.

U. S. ARMY.

Lieutenant Earl Harvey Bruns.
Dr. Thomas Francis Duhigg.
Dr. Bruce Ffoulkes.
Dr. Herbert C. Gibner.
Dr. Samuel Alexander Greenwell.
Lieutenant Haywood S. Hansell.
Lieutenant James D. Heysinger.
Lieutenant John B. Huggins.
Dr. Leonard S. Hughes.
Lieutenant Alexander Murray.
Lieutenant Leartus J. Owen.
Dr. James B. Pascoe.
Dr. Harper Peddicord.
Dr. Ferdinand Schmitter.
Lieutenant Joseph F. Siler.
Major Philip G. Wales.
Dr. Herbert William Yemans.

U. S. NAVY.

Assistant Surgeon Charles Courtney Grieve.
Assistant Surgeon James Hillyer Holloway.
Passed Assistant Surgeon Edward Grahame Parker.

PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

Assistant Surgeon Richard Henry Creel.
Acting Assistant Surgeon C. M. Frissell.
Passed Assistant Surgeon Victor G. Heiser.
Assistant Surgeon George Walter McCoy.
Assistant Surgeon Herbert M. Manning.
Passed Assistant Surgeon Charles W. Vogel.

NATIONAL GUARD.

Captain Patrick Francis Butler, M.V.M.
Captain John W. Foss, Ariz. N.G.
Lieutenant Harry Ogden Fairweather, N.G.N.Y.
Lieutenant Horace M. Hicks, N.G.N.Y.
Captain Marcus Harold Merchant, R.I.M.
Captain Alfons Müller, N.G.N.Y.
Captain James Martin Postle, I.N.G.
Colonel Oliver C. Smith, C.N.G.
Lieutenant Colonel Walter Anson Smith, M.V.M.
Lieutenant Allen Walker Urmson, N.G.Pa.
Lieutenant Arthur F. Wilhelmy, I.N.G.

A. A. Surgeon G. H. Altree, P.H.&M.H.S., granted one month's leave.
Assistant Surgeon H. A. Angwin, U.S.N., ordered from the Naval Academy to the *Massachusetts*.

Assistant Surgeon R. A. Bachman, U.S.N., ordered home from the *Villalobos*.

Captain David Baker, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Leavenworth.

Major William B. Banister, U.S.A., detailed as member of preliminary Medical Examining Board at Jefferson Barracks.

P. A. Surgeon W. H. Bell, U.S.N., ordered from Marine detachment on the Isthmus of Panama to the *Dixie*.

P. A. Surgeon W. L. Bell, U.S.N., retired for disability.

Major Henry P. Birmingham, U.S.A., detailed as member of preliminary Medical Examining Board at Fort McPherson.

Lieutenant Robert M. Blanchard, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Thomas.

Lieutenant James Bourke, U.S.A., ordered from New York City to Fort McHenry.

Dr. Madison H. Bowman, U.S.A., granted three month's leave.

Lieutenant Perry L. Boyer, U.S.A., assigned to duty at Fort Sam Houston and detailed as member of preliminary Medical Examining Board.

Major Alfred E. Bradley, U.S.A., granted a month and a half leave and assigned to duty at Fort Sheridan.

Surgeon William C. Braisted, U.S.N., according to the *Sei-I-Kwai Medical Journal* has made a careful inspection of the Japanese naval medical conditions, his itinerary involving visits to all the institutions in Tokyo, including the naval hospital ship *Saikyo-Maru*, the Kure Naval Station and the army hospital ship *Hakuai-Maru*, the Hiroshima, Sasebo, Maizuru and Osaka Hospitals, together with a number of cruisers and battleships.

Lieutenant Colonel Louis Brechemin, U.S.A., promoted from Major.

Assistant Surgeon E. M. Brown, U.S.N., ordered from the *Chicago* to the Mare Island Navy Yard.

Lieutenant Carroll D. Buck, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Leavenworth.

A. A. Surgeon R. A. Campbell, U.S.N., ordered from the *Worden* to Utica, N. Y., for recruiting service.

Lieutenant James Carroll, U.S.A., appointed delegate to the American Medical Association.

Major Edward C. Carter, U.S.A., ordered to Fort Leavenworth and granted two months leave.

Assistant Surgeon R. B. Chapman, U.S.N., ordered to the Naval Station, Guam.

P. A. Surgeon Taliaferro Clark, P.H.&M.H.S., granted one month's leave.

Major Joseph T. Clarke, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Ethan Allen.

Lieutenant-Colonel E. T. Comegys, U.S.A., retired from active service.

Captain Walter Cox, U.S.A., ordered from Fort Banks to Fort Reno.

Lieutenant George H. Crabtree, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Jay.

P. A. Surgeon H. S. Cumming, P.H.&M.H.S., appointed delegate to the American Medical Association.

P. A. Surgeon D. H. Currie, P.H.&M.H.S., granted two months leave.

Captain Carl R. Darnall, U.S.A., granted a month's leave.

Dr. Oscar F. Davis, U.S.A., returned to Fort DeSoto from temporary duty at Fort Screven

P. A. Surgeon C. H. DeLancy, U.S.N., ordered from the *Marblehead* home to await orders.

Surgeon J. B. Dennis, U.S.N., ordered from the Bureau of Medicine and Surgery to the Pensacola Navy Yard.

Dr. Luis G. de Quevedo, U.S.A., ordered from Henry Barracks to San Juan, P. R.

Assistant Surgeon J. R. Dykes, U.S.N., ordered from the Cavite Naval Station to the *Baltimore*.

Major Rudolph G. Ebert, U.S.A., appointed delegate to the American Medical Association, and detailed as member of preliminary Medical Examining Board at Vancouver Barracks.

Lieutenant James F. Edwards, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Leavenworth.

Surgeon Irwin Fairfax, P.H.&M.H.S., granted a month's leave.

Captain Powell C. Fauntleroy, U.S.A., detailed as member of preliminary Medical Examining Board at Madison Barracks.

P. A. Surgeon C. N. Fiske, U.S.N., ordered from the Naval Medical School to the *Marblehead*.

Captain Clyde S. Ford, U.S.A., granted two months leave.

Captain Joseph H. Ford, U.S.A., ordered from Fort Reno to the Philippines and authorized to enter the Presidio General Hospital en route.

P. A. Surgeon M. H. Foster, P.H.&M.H.S., granted one month's leave.

Major E. B. Frick, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Snelling.

Major Charles M. Gandy, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Wayne.

Dr. Fletcher Gardner, U.S.A., ordered to accompany the 23rd Infantry from San Francisco to Madison Barracks, and granted three months leave.

P. A. Surgeon W. M. Garton, U.S.N., ordered to the Washington Naval Hospital.

Assistant Surgeon D. C. Gather, U.S.N., ordered from the Newport Naval Training Station to the *Pennsylvania*.

Dr. William R. S. George, U.S.A., ordered from Porto Rico to New York City for instructions.

Major Robert J. Gibson, U.S.A., granted four months leave.

Lieutenant Harry L. Gilchrist, U.S.A., detailed as member of preliminary Medical Examining Board at Washington Barracks.

Colonel Joseph B. Girard, U.S.A., ordered to the Presidio General Hospital for observation and treatment.

Captain Guy C. M. Godfrey, U.S.A., relieved from duty as Attending Surgeon and Medical Superintendent of the Army Transport Service at New York.

P. A. Surgeon Joseph Goldberger, P.H.&M.H.S., ordered for special temporary duty at Grafton and Morgantown, W. Va.

A. A. Surgeon R. H. Gray, P.H.&M.H.S., granted a month's leave.

Assistant Surgeon C. C. Grieve, U.S.N., ordered from Guam to the Oregon.

Surgeon M. S. Guest, U.S.N., ordered from the *Lancaster* to the Newport Naval Training Station with additional duty on the *Constellation*.

Major George H. Halberstadt, Brigade Surgeon, N.G.Pa., while recently travelling upon official business, was involved in a railroad wreck, in which he sustained serious cuts and bruises.

Lieutenant James F. Hall, U.S.A., ordered to the Presidio General Hospital.

Captain H. M. Hallock, U.S.A., ordered to Washington for examination for promotion.

Lieutenant Paul S. Halloran, U.S.A., granted one month's leave.

A. A. Surgeon G. C. Hart, U.S.N., ordered from Dry Tortugas, Fla., home to await orders.

Captain F. M. Hartsock, U.S.A., granted a month's leave.

Colonel Philip F. Harvey, U.S.A., granted a month's leave.

Colonel C. L. Heizmann, U.S.A., granted two months leave.

Dr. John R. Hicks, U.S.A., contract annulled.

Assistant Surgeon R. E. Hoyt, U.S.N., ordered to the Naval Academy.

Assistant Surgeon W. S. Hoen, U.S.N., ordered from the *Zafiro* to the *Marblehead*, and from the *Marblehead* to the *Chicago*.

Dr. Gustavus I. Hogue, U.S.A., ordered to North Lake, Wis., for annulment of contract.

Assistant Surgeon H. H. Holloway, U.S.N., ordered home from the *Baltimore*.

Captain Deane C. Howard, U.S.A., granted a month's leave, changed to sick leave and extended one month and a half.

P. A. Surgeon J. H. Iden, U.S.N., ordered from the Naval Medical School home to await orders, and to the Newport Naval Hospital.

Lieutenant George W. Jean, U.S.A., ordered from Fort Adams to temporary duty at Fort Porter.

A. A. Surgeon J. W. Judd, U.S.N., ordered from the Indian Head Naval Proving Grounds to Huntington, W. Va., for recruiting duty.

Major Richard W. Johnson, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Crook.

Dr. George H. Jones, U.S.A., granted three months and a half leave.

Captain Percy L. Jones, U.S.A., promoted from Lieutenant, detailed as member of preliminary Medical Examining Board at Fort Preble, and married to Miss Fannie May Bangs, at Washington, D. C., July 5.

Lieutenant William L. Keller, U.S.A., ordered from the Presidio General Hospital to Fort Douglass.

Dr. John P. Kelly, U.S.A., granted four months leave.

Major Charles F. Kieffer, U.S.A., detailed as member of preliminary Medical Examining Board at Fort D. A. Russell.

Lieutenant H. S. Kiersted, U.S.A., ordered to report for examination to the Promotion Board at the Presidio General Hospital.

Lieutenant C. E. Koerper, U.S.A., ordered for additional temporary duty at Washington Barracks and detailed as member of preliminary Medical Examining Board.

Lieutenant Lloyd L. Krebs, U.S.A., on temporary duty at the Presidio of Monterey.

Lieutenant Leon T. Le Wald, U.S.A., granted a month's leave.

Major William F. Lippitt, U.S.A., detailed as member of preliminary Medical Examining Board at San Juan, P. R.

Lieutenant William L. Little, U.S.A., detailed as member of preliminary Medical Examining Board at Jackson Barracks, and granted two months leave.

Lieutenant Thomas C. Lyster, U.S.A., detailed as member of preliminary Medical Examining Board at Ancon, Canal Zone.

Lieutenant W. J. L. Lyster, U.S.A., ordered from the Presidio of San Francisco to Fort McIntosh.

Lieutenant Patrick H. McAndrew, U.S.A., detailed as member of preliminary Medical Examining Board at Jefferson Barracks.

Assistant Surgeon R. K. McClanahan, U.S.N., ordered from the Fort Bayard General Hospital to the Baltimore Naval Recruiting Station.

A. A. Surgeon P. F. McMurdo, U. S. N., granted one month's leave.

Captain Charles E. Marrow, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Sheridan.

Lieutenant Colonel Louis M. Maus, U. S. A., detailed as member of preliminary Medical Examining Board at Fort Sam Houston.

Assistant Surgeon G. M. Mayers, U.S.N., ordered to the Newport Naval Training Station with additional duty on the *Constellation*.

A. A. Surgeon J. B. Mears, U.S.N., ordered from the Buffalo Naval Recruiting Station to Washington for examination, and thence to duty with the Torpedo Flotilla of the Coast Squadron.

Assistant Surgeon R. H. Michels, U.S.N., ordered from the *Wilming-ton* home via the *Lawton*.

Assistant Surgeon J. F. Murphy, U.S.N., ordered from the *Hancock* to the Buffalo Recruiting Station.

Assistant Surgeon H. T. Nelson U.S.N., ordered from the Washington Naval Hospital to the Indian Head Naval Proving Grounds.

Lieutenant R. P. O'Connor, U.S.A., assigned to duty at the Presidio General Hospital.

P. A. Surgeon K. Ohnesorg, U.S.N., ordered to the *Mayflower*.

A. A. Surgeon H. Owen, P.H.&M.H.S., granted a month's leave.

Assistant Surgeon W. D. Owens, U.S.N., ordered from the *Lawton* to the *Villalobas*.

Lieutenant Robert U. Patterson, U.S.A., assigned to duty with Co. B, Hospital Corps at the Presidio.

P. A. Surgeon J. H. Payne, U.S.N., ordered from the *Pennsylvania* to the *Nashville*.

Captain George P. Peed, U.S.A., granted a month's leave.

Lieutenant James M. Phalen, U.S.A., assigned to duty at Fort Logan H. Roots, and detailed as preliminary Medical Examining Board.

Major John L. Phillips, U.S.A., ordered from Fort Jay to duty with the Isthmian Canal Commission.

Lieutenant Robert H. Pierson, U.S.A., ordered from Fort Bayard to Fort St. Michael.

Dr. Merton A. Probert, U.S.A., ordered home for annulment of contract.

Major Henry I. Raymond, U.S.A., detailed as member of preliminary Medical Examining Board at Columbus Barracks.

Lieutenant Charles R. Reynolds, U.S.A., detailed as member of preliminary Medical Examining Board at Washington Barracks.

Major F. P. Reynolds, U.S.A., ordered for temporary duty as Chief Surgeon, Department of the Columbia.

Lieutenant Chandler P. Robbins, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Ethan Allen.

Dr. Ernest E. Roberts, U.S.A., granted three month's leave.

P. A. Surgeon M. J. Rosenau P.H.&M.H.S., appointed delegate to the American Medical Association.

Lieutenant Edwin W. Rich, U.S.A., ordered for temporary duty at the Depot of Recruits and Casuals, Angel Island.

Major Charles Richard, U.S.A., granted a month's leave, assigned to duty at Fort Jay, and detailed as member of preliminary Medical Examining Board.

Lieutenant Robert L. Richards, U.S.A., detailed as member of preliminary Medical Examining Board at Vancouver Barracks.

Lieutenant E. L. Ruffner, U.S.A., assigned to duty at Columbus Barracks, ordered to escort recruits to Fort Lawton, and detailed as member of preliminary Medical Examining Board.

Dr. Sidney L. Scott, U.S.A., ordered from Washington Barracks to the General Hospital at Washington Barracks.

Captain E. R. Schreiner, U.S.A., ordered from Fort McHenry to Washington Barracks.

Major Louis Livingston Seaman, was the guest of honor at a meeting of the Students' Association in Tokyo on May 13th, and made them a complimentary address upon the high position of Japan in military medicine and surgery, at the close of which the students "gave him three hearty banzai."

Assistant Surgeon H. Shaw, U.S.N., ordered to the Boston Naval Recruiting Station.

P. A. Surgeon H. O. Shiffert, U.S.N., ordered from the Naval Medical School to the Philadelphia Naval Hospital.

Surgeon E. M. Shipp, U.S.N. ordered from the Naval Medical School to the New York Naval Hospital.

Captain Ira A. Shimer, U.S.A., detailed as member of preliminary Medical Examining Board at Ancon, Canal Zone.

Dr. Robert E. Sievers, U.S.A., ordered from Fort Harrison to temporary duty at Fort Yellowstone.

A. A. Surgeon A. N. Sinclair, P.H.&M.H.S., granted a month's leave.

Dr. Ernest F. Slater, U.S.A., granted a month and a half leave.

Lieutenant Robert Smart, U.S.A., ordered from Fort Myer to Fort Washington for temporary duty.

Lieutenant William M. Smart, U.S.A., ordered from Fort St. Michael to report by letter to the Military Secretary from Seattle, Wash.

Major Henry D. Snyder, U.S.A., granted three months' leave.

Surgeon R. Spear, U.S.N., ordered from the Washington Naval Hospital to Russia for special duty in connection with the naval medical and sanitary features of the Russo-Japanese War.

P. A. Surgeon E. K. Sprague, P.H.&M.H.S., granted one month's leave.

Surgeon L. W. Spratling, U.S.N., ordered from the Isthmian Canal Zone home to await orders.

Lieutenant Samuel L. Steer, U.S.A., ordered from the Hot Springs General Hospital to Fort Assiniboine and granted two month's sick leave.

Assistant Surgeon E. M. Steger, P.H.&M.H.S., ordered from New Orleans, La., to Philadelphia, Pa.

Major Henry R. Stiles, U.S.A., retired from active service.

Assistant Surgeon A. M. Stimson, P.H.&M.H.S., granted a month and a half leave.

Assistant Surgeon R. E. Stoops, U.S.N., ordered from the *Lawton* to the Olongapo Naval Station.

Captain Paul F. Straub, U.S.A., detailed as member of preliminary Medical Examining Board at Ancon, Canal Zone.

Assistant Surgeon H. F. Strine, U.S.N., ordered from the *Barry* home via the *Lawton*.

Assistant Surgeon C. K. Strite, U.S.N., ordered from the *Lawton* to the *Barry*.

Dr. Frank Suggs, U.S.A., arrived at San Francisco from the Philippines for medical treatment, and granted two months' sick leave.

Assistant Surgeon R. L. Sutton, U.S.N., retired from active service.

Lieutenant W. H. Tefft, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Snelling.

A. A. Surgeon J. G. Thomas, P.H.&M.H.S., granted one month's leave.

Surgeon E. Thompson, U.S.N., ordered from the *Des Moines* home to await orders.

Lieutenant Robert M. Thornburgh, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Banks.

Dr. Charles W. Thorp, U.S.A., ordered from Fort Ethan Allen to temporary duty at Plattsburgh Barracks.

P. A. Surgeon H. H. Tolfree, U.S.N., ordered from the Naval Medical School to the Norfolk Navy Yard.

Assistant Surgeon J. P. Traynor, U.S.N., ordered home from the *Rainbow*.

Dr. Milton Vaughan, U.S.A., ordered from Fort Douglass to Fort Crook.

Surgeon L. L. Von Wedekind, U.S.N., ordered from the Newport Naval Training Station to the *Lancaster*.

Lieutenant William E. Vose, U.S.A., ordered from Fort Logan H. Roots to Fort Sheridan, and detailed as member of preliminary Medical Examining Board.

Major W. J. Wakeman, U.S.A., detailed as member of preliminary Medical Examining Board at Fort Thomas, and granted thirty days' leave.

Dr. Francis M. Wall, U.S.A., ordered from Fort Oglethorpe to temporary duty at Fort Fremont.

Captain Henry A. Webber, U.S.A., ordered from Fort Walla Walla to Fort Banks, and detailed as member of preliminary Medical Examining Board.

Dr. Samuel J. White, U.S.A., ordered from Fort Snelling to temporary duty at Fort Harrison.

Lieutenant E. R. Whitmore, U.S.A., assigned to duty at Fort Jay.

Surgeon F. W. F. Wieber, U.S.N., ordered to the Pensacola Navy Yard and to command of the Pensacola Naval Hospital.

Captain William H. Wilson, U.S.A., assigned to duty as Attending Surgeon and Medical Superintendent of the Army Transport Service at New York.

Major Charles E. Woodruff, U.S.A., appointed delegate to the American Medical Association.

P. A. Surgeon B. L. Wright, U.S.N., ordered from the Pensacola Naval Hospital to await orders.

THE LOG OF DR. JOSEPH HINCHMAN.—The *Pennsylvania Magazine of History* publishes the log of Dr. Joseph Hinchman, Surgeon of the Privateer Brig *Prince George*, which sailed from New York about July 15, 1757, to cruise against the French, but was wrecked off the northern coast of Haiti some six weeks later.

HOSPITAL CORPS INSTRUCTION IN MICHIGAN.—Orders No. 2, c. s. 1905, of the First Brigade, Mich. N.G., is a comprehensive outline of the course of instruction prescribed by Brigade Surgeon Julius F. Henkel for the Hospital Corps. The course covers a period of two years and comprises, in thoroughly logical sequence, everything that should be taught.

HEALTH OF THE JAPANESE NAVY, 1902.—The annual report of Baron Saneyoshi, Chief of the Medical Bureau of the Japanese Navy Department, for 1902, has just been issued in English and comprises an excellent statement, chiefly statistical, of the medical work of the Japanese Navy during the year in question.

SURGEON GENERAL TAKAKI RAISED TO THE PEERAGE.—Dr. Takaki whose work, particularly in connection with Beri-Beri, is well known in the profession and who was placed on the retired list after serving as Director General of the Medical Department of the Japanese Navy, has been elevated to the peerage as Baron Takaki. This is by no means the first case of a medical peer in Japan, Baron Saneyoshi and others having already well represented the healing art in the Upper House of the Japanese Legislature.

AN IMPROVED SHOE FOR THE MILITARY SERVICE.—A contract has recently been awarded for twenty thousand shoes of the so-called orthopedic pattern, a style of shoe, supposed to follow the shape of the foot and which therefore is made broader across the toes than across the sole, a feature which is believed to give greater ease to the foot and consequently to be better adapted to be used for marching than the styles hitherto employed. Ten thousand of the shoes ordered will be of "single marching pattern," and the rest of "double marching pattern," the latter having a shank thinner than the present marching shoe so as to give more play to the foot. This is expected to render the sole more pliable and to obviate the stiff and unyielding character so much criticized in the forms hitherto used.

ASSOCIATION OF MEDICAL OFFICERS OF THE ARMY AND NAVY OF THE CONFEDERACY.—The annual meeting of the Association of Medical Officers of the Army and Navy of the Confederacy was held in Louisville, Ky., on the 14th, 15th and 16th of June. The sessions were most interesting, involving a large amount of valuable historical work. The Association of Military Surgeons was represented by an official delegation consisting of Captain Thomas Page Grant and Captain Samuel Cecil Stanton who were received with the highest cordiality, and who addressed the meeting assuring the members of the hearty friendship of the Association of Military Surgeons and inviting them to send delegates to the next meeting in Detroit.

SOCIAL FEATURES OF THE DETROIT MEETING.—The program of the Detroit meeting is well under way and, in addition to numerous attractive scientific features, the social phase of the meeting will be unsurpassed in character, including a General Reception at the Hotel Cadillac on the 25th; a Tally-Ho Ride through the City, Parks and Boulevards, with supper served at the Detroit Yacht Club overlooking the river on Belle Isle Park on the 26th; a visit to the Museum of Art, with Lecture by the Director for the ladies, and an inspection of the Scientific Laboratories of Parke, Davis & Co. for the gentlemen on the afternoon of the 27th, with a Theater Party for both ladies and gentlemen in the evening; a Trolley Ride to Orchard Lake, Pine Lake and Cass Lake on the evening of the 28th; closing with a full day devoted to a special Steamer Ride over Lake St. Clair to the "Venice of America"—the St. Clair Flats,—with Dinner at the famous Star Island House, then continuing up the St. Clair River and returning to Detroit about five in the evening,—an excursion of over seventy miles,—for the members of the Association with their families and invited guests. Altogether the entertainment provided promises to be the most sumptuous the Association has ever enjoyed. Foreign delegates have been named for this meeting as follows: England, Col. W. J. R. Rainsford, R. A. M. C.; Guatemala, Don Joaquin Yela; Mexico, Lieut. Col. Alejandro Ross.

AN UNRECOGNIZED INSTANCE OF HEROISM.—In 1869 Major Arthur R. Jarrett, now of the National Guard of New York was an apprentice upon the United States Steamer *Saratoga* which was on duty in Havana Harbor where an epidemic of yellow fever was raging. The disease found a nidus upon the ship and thirty-seven cases developed with seventeen deaths. The first to die was Dr. John Paul Quinn, the ship's Surgeon, whose place was supplied by Dr. Lewis Stephen Pilcher, then a naval medical officer, and now well known as the editor of the *Annals of Surgery*. Additional nursing help being required, volunteers from the ship's company were called for and three apprentices responded, young Jarrett then only fourteen years old among the number. The other two acquired the disease and died but Jarrett escaped. During his attendance upon the sick he received numerous assurances of recognition of his bravery, but when the crew was mustered out he, boy like, paid no attention to the matter. In course of time, inspired by his experience on the *Saratoga*, he undertook the study of medicine, and singularly enough, found in the Long Island College Hospital faculty the former surgeon of the *Saratoga*, who recently remarked concerning the services of Major Jarrett, "during the thirty-five years that have elapsed since the terrible experience on the *Saratoga*, the recollection of young Jarrett's conduct has remained with me. He was the life of the ship and of invaluable service in nursing and cheering the fever victims. Surely his conduct was most praiseworthy." A movement is on foot to secure belated recognition for Major Jarrett's services which it is hoped will be successful.

Current Literature.

PILCHER'S FIRST AID.*

THE rapid successive appearance of nine editions of a work would seem to be in itself a sufficient indication of its character and the writer undertakes the duty of commenting upon the ninth edition of the well known "First Aid in Illness and Injury," of the editor of this Journal with a great deal of diffidence. It is to be noted, however, that all of the features which have characterized previous editions are retained; the chapter on transportation of the disabled includes the Army Hospital Corps Drill Regulations, promulgated but a few months ago; and notes upon injuries by electricity and infection through the media of insects have been added to the text; while numerous new illustrations—increasing the total number from 175 to 208—have been added, and still others have been substituted for some of those formerly used, bringing the pictorial features fully up to date; among them may be especially noted a new frontispiece in which a photograph of first aid instruction at Washington Barracks is substituted for the drawing by Zogbaum of an ambulance station in war formerly used. The book indeed continues to maintain its reputation for completeness and nothing seems to be wanting to adapt it to the purpose which it has so successfully and admirably filled during the past twelve years—A. R. ALLEN.

GALLSTONES.†

THIS valuable work is founded upon a series of lectures delivered at the Medical Graduates College in London in the spring of 1904, and includes a detailed account of

**First Aid in Illness and Injury. Comprised in a Series of Chapters on the Human Machine, its Structure, its Implements of Repair, and the Accidents and Emergencies to which it is Liable.* By JAMES EVELYN PILCHER, M.D., L.H.D. Ninth Edition; 12mo.; pp. 356, with 208 illustrations. New York, Charles Scribner's Sons, 1905.

†*Gallstones and their Surgical Treatment.* By B. G. A. MOYNIHAN, F. R. C. S. 8vo.; pp. 386, with nine colored plates and seventy-one text-cuts. Philadelphia, New York and London, W. B. Saunders & Co., 1904.

the etiology, pathology, clinical manifestations and operative treatment of gallstones. It is an example of the highest type of monograph and discusses the subject of cholelithiasis in all its phases with particular reference to surgical treatment in which it is as full and complete as would only be possible in a volume devoted exclusively to the subject.

DISEASES OF THE LIVER *

THE high reputation of Dr. Rolleston as an authority in hepatic affections attaches especial interest to the present presentation of his views and experience upon the subject to which he has devoted so many years of work. The treatment of the three topics, to which the work is devoted, is systematic, clear and comprehensive, ample space being given both to pathology and to the clinical manifestations of the subjects.

PERSONAL HYGIENE.†

THIS second edition of Dr. Pyles' timely book is an evidence of the continued worth of such a treatise for popular use. It may well continue to have the vogue which has already greeted it.

THE THYROID AND PARATHYROID GLANDS.‡

THIS is an excellent collection of the existing information in connection with the thyroids, covering the history, embryology, surgery, medical therapeutics and pathology. Myxedema, Basedow's disease, and cretinism receive ample consideration and the therapeutic applications of the pharmaceutical preparations are brought out fully.

**Diseases of the Liver, Gall-Bladder and Bile-Ducts.* By H. D. ROLLESTON, M.D., 8vo.; pp. 794, with seven colored plates and ninety-seven text-cuts. Philadelphia, New York and London, W. B. Saunders & Co., 1905.

†*A Manual of Personal Hygiene* Proper Living upon a Physiologic Basis. By American authors. Edited by WALTER L. PYLES, M.D. Second Edition, Revised and Enlarged. 12mo.; pp. 441, with 120 illustrations. Philadelphia, New York and London, W. B. Saunders and Co., 1904.

‡*The Thyroid and Parathyroid Glands.* By HUBERT RICHARDSON, M.D. 8vo.; pp. 257, with twenty-seven half-tone illustrations. Philadelphia, P. Blakiston's Son & Co., 1905.

DISEASES OF THE BLOOD.*

IN the ninth volume of the monumental Practice of Medicine, edited by Prof. Nothnagel, diseases of the blood receive the same exhaustive consideration as has been accorded to the subjects of the preceding volumes. Prof. Stengel, the distinguished American editor of the series, has given his personal attention to the details of the present volume and added greatly to its value by his own comments and interpolations. This feature is particularly apparent in the article on anemia and the combination is one which cannot be too highly commended.

THE POETRY OF MEDICINE.†

UNDER the title of The Doctor's Window the fifth volume of the Doctor's Recreation Series presents an anthology of medical verse, a work which will be found to be of the greatest interest and value to the profession. The deeds of the doctor have not been sung as frequently as have those of his protagonist, the soldier, but there have been many beautiful poems dealing with the healing art, the best of which are now brought together in this convenient and luxurious shape for reference and reading.

INTERNATIONAL CLINICS.‡

IN the first volume of the Fifteenth Series, the International Clinics sustains its previous reputation for interest and value and includes an extensive discussion of the progress of medical and surgical science during 1904 by Drs. A. A. Stevens, David L. Edsall, William B. Stanton, and Joseph C. Bloodgood.

***Diseases of the Blood.** (*Anemia, Chlorosis, Leukemia, Pseudoleukemia*). By Drs. P. EHRLICH, A. LAZARUS, K. VON NOORDEN and FELIX PINKUS. American edition edited by ALFRED STENGEL, M.D. 8vo.; pp. 714, fully illustrated. Philadelphia and London, W. B. Saunders & Co., 1905.

†**The Doctor's Window.** Poems for the Doctor, by the Doctor, and about the Doctor. Edited by INA RUSSELLE WARREN. 8vo.; pp. 288, with four photogravures. Akron, The Saalfeld Publishing Co., 1904.

‡**International Clinics.** A Quarterly of Illustrated Lectures and Especially Prepared Original Articles. Edited by A. O. J. KELLY, M.D. Fifteenth series. Vol. I. 8vo.; pp. 312 with twenty-seven illustrations. Philadelphia, J. B. Lippincott Co., 1905.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

A SANITARY STUDY OF CULEBRA AS A NAVAL BASE.

By HOWARD E. AMES, M. D.,
MEDICAL INSPECTOR IN THE UNITED STATES NAVY.



THE recent expansion of the territory of the United States into parts far from the immediate country, has placed us in a political position that has attracted the attention of the civilized world.

The position given the United States in the family of Nations by Jefferson in his laconic reply to President Monroe, was adopted and made known to the world as the Monroe Doctrine. When first announced it attracted little attention, but as its meaning was gradually unfolded, it became more fixed. When the broad field that the Doctrine covered, was plainly defined by Secretary Olney, and proclaimed abroad, it created a mental disturbance among European Statesmen and roused a spirit of opposition in most of their Governments.

This Doctrine, endorsed by both political parties in our country, and unanimously supported by our whole people, when proclaimed by our Government in the most unequivocal language to the whole of Europe, was received either coldly, ungraciously, or not at all.

Notwithstanding our actions in the past in regard to Mexico

and Venezuela, and our present stand regarding the Isthmian Canal, and the purchase of the Danish West Indies, the Monroe Doctrine is not received as an earnest dictum of our intentions to maintain it. It has, no doubt, jostled some so harshly as to arouse doubts; and caused them all to study us in a more critical way.

How can they overcome it? A Doctrine may be changed, but not arbitrated. It can be broken only by violence. This must be answered "by force," which means war.

Since we have openly and boldly announced our intentions and taken our positions, it is well to consider the means at hand to defend each by preparing for an armed struggle.

Preparedness prevents rather than precipitates war. To delay preparations is a dangerous policy; it courts disaster and ultimately wastes not only treasure, but life. Readiness strengthens the nation by that indefinite time existing between probable and possible, a factor of great economic value.

This being the condition at present, we are naturally looking over the field to establish ourselves in a defensive position. Our national tendency is toward peace, and we are spared that feature, so earnestly sought after by those Voluntary Nations of Mars; an offensive position. It is well, however, in the selection, to bear this factor in mind, and if a position present both qualities (if not at the sacrifice of defense), then that combination is preferable.

A war base may be of three kinds; a purely military base, a purely naval, or a combination of the two. The essentials vary. A location may be perfect for the military and entirely unsuited for the others, such as a purely inland base. The combination must have water facilities. In all cases it must be dependent upon its own dominant strength, for it is assumed that such a base would be on some river, or deep estuary, with unbroken communications with the main land. It never can be insular.

An insular base may be a combination, but the military must be secondary from the nature of the environments: and as communication or attack can only be made from the water, it must depend entirely upon the Naval power of the country for

every requirement. The military function is thus limited to the single feature of fighting the guns that fortify the base.

We now come to the consideration of the purely naval base, but before entering into details, it may not be amiss to lightly consider the necessities that require the establishment of such a place.

Our outlying possessions in the East, and those in the West Indies, are sufficient reason for the demand for such an establishment. In the West Indies the greatest demand exists, as there we are most likely to be assailed by an European power, being nearer their centre of operations.

Upon our Eastern possessions I shall not dwell. To maintain supremacy in any part of the world's waters, or to secure ourselves against loss or defeat, we must not only have a powerful fleet to drive off an enemy, or crush it, but maintain certain bases or stations to shelter, repair, and replenish the vessels of such a fleet. The base must be as near as possible to the waters or place to be defended.

The efficiency of a ship in war time depends upon several varying elements. Her fighting efficiency may be perfect as to personnel, guns, ammunition and engines, but if short of fuel, her effective radius is measured by the coal supply on hand. As time and distance are synonymous in a warship's efficiency, it is evident that these are of the greatest importance in the selection of a position for a base. The replenishment of stores being of nearly equal value to coal, I shall include, for the sake of brevity, ammunition, food, medical supplies; in fact, everything outside the basic fighting feature of the ship.

This brings us to the question of geographic position, the physical feature will be touched upon later. As previously stated, the location should be well within the area of operation; it must contain sheltered harbors for a fleet, with capabilities of defense. Before going farther, let us locate this base on the Island of Culebra; discuss the various requirements and see whether they can be fulfilled, and then look carefully into some features that seem to me, preeminently essential, but which, strange to say, are entirely ignored by nearly all military writers,

or so lightly touched upon, as to lead the student to dismiss them with but little thought. I mean its hygienic and sanitary value, in its bearing upon its success, or failure, as a permanent base.

Culebra, one of the Porto Rican group, is twenty miles to the east of that island. Close to it are Culebrita, Northeast and Southwest Cays, and several smaller islands. Ten miles from it, in a southwest direction, is Crab Island. St. Thomas, Danish West Indies, is about twenty miles to the east.

The main island of Culebra is about six miles long, and the broadest part is about three and one-sixth miles, the bay (Great Harbor) being included in these measurements. The Island, including the bay, is broader on the north than the south side; the average width of the north side being about one and one-third miles, and that of the south about one half mile. Two islands, the Northeast Cay and Culebrita, lie off the north side of the island, about two-thirds of a mile distant, and about a mile apart, with a small bay and numerous reefs between.

Southwest Cay is on the south side and about the same distance (two thirds of a mile) from Culebra.

The area of the island is about eight square miles (roughly estimated from the chart). The combined area of the other three islands is over a square mile. Culebra and these islands are all hilly, well-covered with good sized trees and underbrush. A fair portion of the land has been cleared and is partly under cultivation, but the major part is used for grazing purposes.

Culebra is volcanic in origin and is covered with a friable iron ore, which is free from sulphur, and from two analyses (of different samples), gives about twenty-five per cent of iron.

The island is cut up in a most picturesque manner by ridges of hills. Beginning at the Northwest Point, it runs in a single ridge (of varying heights), in a southeast direction for a distance of two and a half miles, where it divides into two branches, the southeast one following the coast line to Soldier's Point on the south, the northern ridge to Bluff Point on the north side. The hills forming these ranges vary in height from one hundred and fifty feet to six hundred and fifty feet. At Seine Bay in the southern range there is a break in the chain with a depression of

only ten feet elevation. This fortunate feature will be mentioned later. From the Northern range, a number of shorter ranges spring curving to the southeast. Several separate ridges are scattered in various directions. The island viewed from the sea gives an impression of difficult traveling, owing to the numerous hills, but it is gratifyingly pleasant to find on examination (by actual exploration), that the island is filled with very beautiful and diversified valleys, easy of access and more extensive and fertile than a simple inspection of the map or chart of the island could convey. This distribution of the hills, with the direction of the ranges, singularly fits the place for a Naval base, and I will later attempt to show that these physical features are of value in a defensive sense.

Great Harbor is a beautiful bay, nearly surrounded by the hills which afford most pleasant views in all directions; it is deep, perfectly sheltered, and more capacious than one would think from a momentary inspection. The whole bay shore is fringed with a rank growth of mangrove which will be reverted to later. A number of deep indentations existing in the bay were originally deeper and more extensive than at present, but the washing from the land has gradually encroached upon these indentations, shallowing all and filling some, so much so, as to form swamps at low water. This condition will receive attention, owing to its sanitary bearing on the place.

On either side of the entrance to the harbor are coral reefs which are a great protection to the harbor against prevailing winds or storms, that could create seas which would in any way disturb ships at anchor. On the outside of the bay, on the ocean shore, numerous coral reefs are found, in many cases giving protection from heavy seas to the little bays or anchorages, that would be of value, were it adopted as a base.

Five ponds exist on the Island, all brackish, and all near the sea. Flamingo Lake, the largest, is situated on the north west end of the Island; Wild Duck Pond on the north side; Bass Pond and two smaller ones on the south side.

There are three beautiful sandy beaches (the cleanest I have ever seen), where the surf is constantly breaking, and the wind

is felt in a delightful breeze, making these beaches the most pleasant places on the Island; and of great sanitary importance.

A glance at the chart shows numerous shallow outlying reefs and banks, extending to the southwest on the harbor entrance of the Island, and they form formidable obstacles to the unfamiliar navigator of these parts. These dangers, however, are a source of strength, as a careful examination will show that all of them can be overcome by familiarity and careful study. On the north side extending from the eastern end to the Northeast Cay, and round under the lee of Culebrita, and beyond to the eastward of Breeze Point, for a distance of two miles, are well protected anchorages, safe, commodious, and of easy access, for vessels of the largest size and the deepest draught. One is called Target Bay, and includes Firewood, Target, Sun and Snug Bays, and the waters beyond Red Cliff Point. Thus briefly and roughly I have sketched Culebra. We will see if it covers the requirements, as decided by military and naval writers. They seem a unit in agreeing upon the following points: First, strategic; that it should be near our lines of communication, centrally located with reference to the routes entering the area we wish to control. Other features are, broad entrances through which ships can enter or leave in strong force, which means abreast; or if entrance is narrow, it should be short and widen rapidly, both inside and outside the line of defense. The entrance should be narrow enough to be controlled by land defense fire, and not too deep to prevent protection by submarine mines. Sufficient front, with ample facilities for landing stores and supplies of all kinds, with protected sites for dry-docks, workshops, coal-wharves, magazines, barracks, etc., etc. The harbor may be single, double, or with three entrances.

An inspection of the Chart of the Caribbean Sea will, I think show the important geographical situation of Culebra; particularly will its strategic value increase when we take into consideration the two bases that have been ceded to us in Cuba, viz.: Guantanamo on the south and east end, and Bahia Honda on the north side and the west end of the Island.

With a base at Bahia Honda or near it (as pointed out by

Captain Walker), we could effectively control and, possibly, close the Gulf of Mexico against an invading force. From Guantanamo, the Windward Passage could be readily defended. This leaves the Mona Passage and the numerous passages of the Windward Islands free.

Culebra, situated about six hundred miles to the eastward of Guantanamo, and about the same distance from the north coast of South America, is sufficient to impress one with its geographical and strategic value as a flank base, especially so, as I understand that Porto Rico is singularly devoid of any port that can be made impregnable, or suitable for a Naval Base. An examination of Culebra will I think, show extensive and safe anchorages for the largest fleets, completely sheltered and sufficiently large to enable a fleet to move in any direction, or in any formation to meet an enemy, or to give battle; also a capacious inner harbor for the withdrawal of vessels, forced, through inherent weakness of fighting power or injury, to a position of security and protection. Before this last statement be accepted, let us consider the harbor, its natural protection and capabilities for defense.

The topography of the Island shows the harbor to be surrounded on all sides, except at the entrance, by hills sufficiently high to prevent any injury being inflicted by an enemy from bombardment in any direction, except directly in front of the entrance which would require the enemy's vessels to manoeuvre over the Grampus Shoals, which would never be done owing to the extreme danger to the besieging vessels.

From any other direction the elevated land would effectively stop any shots, for if the enemy's guns were elevated sufficiently to clear the hills, their shots would pass over the bay.

Suitably placed batteries would be more dangerous to the besieging ships than the fleet would be to the harbor, as, fortunately, the approaches to the bay enable the placing of forts so as to bring the enemy a mile nearer the danger limit, than their effective fires would be to the harbor.

The harbor itself will now receive a rough examination. I shall only consider the harbor from the entrance, bounded by a

line drawn from Puerta Carenero to Puerta Colorado, as the narrow entrance practically ends at a distance of one-fourth mile outside this line. As the harbor now exists, unimproved, I am informed that eight vessels drawing from twenty-six to twenty-eight feet can be anchored without danger, besides anchorage for numerous others drawing from twelve to twenty feet. On the north side of the harbor, we have first a cove between Puerta Carenero and Puerta Cabras; between the latter point and San Ildefonso, we have another extensive cove, nearly a half mile deep and nearly a mile long. This is now filled with soft mud, the washings from the hills, and can be readily dredged out. We next come to Cemetery Cove, a third of a mile deep by an eighth of a mile wide; this is capable of deepening by dredging. The next, Coronal Cove, is about three-quarters of a mile deep and about one-fifth of a mile wide, easily dredged out. The upper end of the Bay, from Pirates Cay, gradually shallows, varying from twelve feet to nothing, but capable of being dredged out. From Pirates Cay to Colorado Point on the south shore, the soundings are deep, averaging twenty-five feet within one hundred and twenty yards from shore. There is but one cove with any depth on the south side, Fullodoa Cove; this is three-quarters of a mile deep. From Colorado Point, about one-third of a mile of this would need dredging. There is a final cove about one-fifth of a mile wide (in the narrow part), which is the most protected of any, and appears to me the place for a dry dock, as its head is perfectly protected from a chance shot. All these coves can be readily and cheaply, deepened.

It is a natural question to ask on what grounds I base my opinions regarding the ability to deepen these various coves.

The conformation of the Island, which is hilly with deep valleys, would indicate that, originally, these coves were deep fissures; and a study of the chart will show that all of them receive drainage from the hills, those draining the largest water shed being the shallowest. The surveys of all these coves gives soft and sticky bottoms; in fact, the whole bay is of fairly uniform depth, which would indicate filling up from the washings from the hills. The absence of currents, or waves, indicates that

the filling of these coves is of a material that is readily removable. I think that we can justly admit that Culebra fills the requirements demanded by our war students as an unusually strong military or naval base.

Let us now examine it from the sanitary side.

One naval student of warfare (Stockton) has said, "The obligations that have arisen with our new dependencies are greater than any strength that has arisen from them, and it is well to study the necessity that will arise for their maintenance and defence." He further quotes the remark of one of the world's greatest diplomats, "Fools say that you can only gain experience at your own expense, but I have always contrived to gain experience at the expense of others."

We find history filled with glaring and expensive military blunders, gloomy and gruesome blunders, which are, especially on the victorious side, lost sight of in the glamor of victory, or, on the vanquished side, often forgotten in the gloom and bitterness of defeat. Victory never remembers the cost; suffering is forgotten. We hear only the martial music; the blare of trumpets and roll of drums fill our ears, our cheers of welcome to the victorious engage our thoughts; we see only the living heroes, their movements, their flushed faces and flashing eyes, their garlanded brows, and as their shimmering arms pass in review, we follow with joyous and thankful hearts.

We tend the surviving sick and wounded lovingly and tenderly, perpetuate their deeds in triumphant arches, and colored canvas, ennobling and attractive to look upon, but we see neither war pictures nor panorama of conditions before the battles. From the declaration of war to the dawn of peace, events are never illustrated. The dead or dying, the delirious, or passive sick, we do not see. The low mutterings, or labored breath, are not heard. The wasted figures and pale faces of the victims of disease are never presented. The exposure through neglect, the deaths from preventable diseases do not pass in review: Their voices of protest are not heard; they sicken, die, and are buried out of sight. They are honored and recorded in a curious uninteresting row of figures variously arranged—each life a unit. What a vast

army compared with the few who die from the enemy's weapons. It is, perhaps, just as well that this subject be not put on canvas, and used as a background or companion piece to the battle scenes: its colors and figures would haunt us and disturb our sleep, for these ghostly victims of the horrors and sufferings of war are mainly caused by our ignorance, selfishness, narrowness, conceit, and neglect of the many lessons of the past. Are we searching the pages of history? Are we applying wisdom and experience thus gained? Are we preparing defenses against this most insidious foe—disease? You say that there is no war, why worry? I admit there is no active or noisy combat, but this enemy,—disease,—is not neutral: he is quietly occupying his offensive positions, ready to strike those who do not detect his presence, break down his strength, and destroy his strongholds. This war must be waged while Mars slumbers and Peace is awake.

When the trumpet sounds the call for war, it is too late; dilatoriness scoffs at us; discouragement joins in the laugh; distress and despair hover over us; disease and death are the successful leaders; History repeats itself.

Are we to remain supine, or are we to profit by the experience of the past? If we are to profit, let us begin to study the blunders of the past and prepare to remedy them in the future.

If we are to maintain and defend our new dependencies, we must study the necessities that are bound to arise. Rene de Cartout, says, "Of the defensive and offensive weapons of the armament and the mechanism that works them, however terrible the effects produced by an arm, its adoption should be rejected if there is any appearance of danger in its handling, if complicated or unreliable."

If this be true, when applied to weapons of warfare, how much more strongly it impresses us when men are considered. The most perfect weapons and formidable defences are useless, when those who are to use or defend them, are incapacitated by illness. Efficiency and health are inseparable. Victory has never, in the history of the world, perched upon the banners of a diseased army.

By the neglect of opportunity and overlooking such things,

some of the greatest disasters have occurred. Because we cannot grasp an idea is no reason for casting it aside as useless. A leader need not have scientific attainments, and still be the best man to guide us, provided he has scientific instinct. The great Gustavus Adolphus lost his life and the battle through a defect of vision; he could not see, and would not be directed or guided by those of inferior rank, but with perfect vision. Napoleon's disastrous campaign into Russia marked the period of his waning glory; a urethral stricture was the cause. His military genius; his far-seeing strategic brain was dominated by the base elements of his nature; the pain and suffering brought on by the indiscreetness of youth, finally defeated him, and overthrew his ever-conquering army, not through bullets, but through disease and neglect.

The English occupied the Island of Balbeck against the advice of sanitarians. Its sterile soil, with bad water and climate was enough to condemn it. The strategic and excellent position won the argument. It was occupied and fortified. It was taken by pirates in 1775, due to the climatic diseases, that reduced the garrison from four hundred to one hundred and three. Immense treasure, the loss of the pearl-fisheries and also the place was the cost.

The English expedition against Santiago, Cuba, in 1741, was abandoned by Wentworth through the loss of so large a part of his force by disease. About the same time, the taking of Havana cost the English about five hundred and sixty in killed, four thousand seven hundred and eight of disease; over eight men died of disease, to one killed by the enemy.

The English abandoned the idea of holding San Juan, Porto Rico, as a colony or stronghold, owing to the great mortality from disease.

The Swedes, in colonial days, built a fort at the mouth of Salem Creek, in New Jersey; and named it Elfsburg; they were obliged to abandon it, owing to the pest of mosquitoes; they left it in disgust after naming it Myggengorg, which means Fort Mosquito.

I mention these few instances to show that health is the first

thing to be considered; if this cannot be obtained, its value is nil. A position, however strong strategically, if unhealthful, cannot be permanently held. A constant expenditure of life or health would never justify the holding of such a place, and I claim, that before a nation selects a permanent base, the preservation and maintenance of health should be the first inquiry made, and if it cannot be secured readily and at reasonable expense, all thought of occupation should be abandoned. Better allow your enemy to occupy it, for such a place would be a weapon against themselves.

Let us now examine into the health conditions of Culebra, and the future outlook in this respect. In attempting to judge of the health of the Island we are debarred from the use of sufficient statistical evidence to make it of great importance, but we have some few obvious features, which together with some others, enable us to base a fair opinion. Without entering into a discussion as to the effect of climate upon the health of the individual under climatic influences, we will simply look into the climatic conditions prevailing there. It is not necessary for our purpose to dwell upon the elasticity of the human body to adapt itself to the variations of climate, or the question of acclimatization, which would imply that climate has an injurious effect, which we are not ready to admit.

Acclimatization has its effects; it is nature's hygienic measure to preserve every function of the body, by gradually regulating the various systems of the body to work in union to conserve life under changed conditions. We will refer to this later without considering those diseases that may exist, and which are not altogether due to climate, but depend upon a combination, such as food, water, shelter and unhealthy surroundings which often prevail because assisted by those meteorological conditions that go to make up climate. Warmth and humidity of air, we know, are favorable to decomposition of all kinds; heat increases the putrefactive power, and this factor is constant in the tropics; the same conditions exist for short periods in temperate regions, but there are long periods when these conditions cease; a rest is given which we lose sight of. Malaria, yellow fever, and other diseases are equally severe there, when the same conditions exist

in what would be called an opposite climate. We must consider these conditions with the feasibility, not of changing the climate, but the effects they may have on the human body; this is where the application of the laws of hygiene is used, for sanitary measures may change many of these conditions which we have attributed to climate. The term climate will be used in the generally accepted sense.

We may speak of the effect of climate as relative. As I have stated before, conditions may be the same, but the cold of the temperate zone may check what the heat of the torrid zone fosters. Still, certain features exist in the tropics that must be considered. In our argument we need only take the effect produced upon our own people, if subjected to the conditions found in the tropics. Heat from the sun in the tropics is the great factor that is constantly in the mind of people, as the principal danger to be met with. Let us dwell a moment upon its influences. We admit that accurate observations have not been made upon the subject of the effect of heat upon the vital functions of an alien in the tropics, as so many circumstances surround his new mode of life, that are not common to the native, that it is difficult to separate the complications that insanitary conditions and climate may have. His dress, food, his activities, all so different from the native, make the subject very difficult to base a positive statement upon.

It is proven that vertebrates, if exposed to temperatures of 113° F. in still but fresh air, die from the coagulation of the myosin and the effect upon the nervous system; still, we know that in India, temperatures of 123° F. at Pochpaora and at Jacobabad 122° F., have been recorded (as observed by well shaded verified thermometers), and people lived through it; now with ventilation and free action of the skin this may be less injurious than would seem at first blush, for other conditions may exist; the skin may be dry, but it is not evidence that it is not acting, or that the secretions have dried up. The temperature of the body does rise, in the tropics, above the normal. It has been noted that the rise is from 0.2° F. to 1.2° F. We also know that this condition does not last long. The functions soon adapt

themselves to it, and the vital balance is restored. The amount of heat borne in the shade is wonderful, with free perspiration and a dry heat, a temperature of 206° F. has been borne with a rise of 2.5° F. over the normal.

In the tropics the respirations are lessened, and the breathing gentler, the tidal air being less, the amount of oxygen is diminished. When the temperature is high, the heart movements are slower, the skin acts more vigorously, the urine is reduced in quantity, the amount of urea is diminished; there is less vigor of mind and body; less weight is also observed. No doubt, humidity in combination with heat, has a great influence in all these effects. The digestion is not strong. All of these observations show that they are the natural adaptability of the system to adjust the functions of the body in keeping with the climate. When once established, they are for that place normal; no doubt, degraded so far as vigor is concerned, but this does not mean functional degradation, or disease. These changes teach us that exertion of all kinds, both physical and mental, must be diminished; that the same amount of activity cannot be demanded, that is obtained in the temperate zone.

Humidity is of great moment in considering the effects of the heat. The two in combination must be estimated. We know that warmth and moisture are less injurious than cold and moisture; these two must also be counted in their effects upon the body with the air movements. If winds are hot and dry they do not directly reduce the heat of the body, but through evaporation of perspiration the body temperature is reduced. If humidity is great and temperature is high, we feel the ill effects. We need not touch upon either cold or rarified air in their bearing on Culebra's healthfulness, as neither exists.

I shall not dwell upon acclimatization, as it is assumed that if Culebra were occupied, those stationed there would be changed every two or three years. We will apply these facts later on.

The Island being small and well in the tropics, we find the northeast trade winds to be steady, and felt in all its parts; very few places being completely sheltered from the wind. This is of great advantage.

The temperature is subject to but slight variations the year round, fluctuating between 75° F. and 90° F. The nights are cool all over the Island, and in the exposed places, as on the tops of the hills, a blanket is very grateful. They have a dry and a wet season, but neither is severe. The wet season is from May to December, the annual rain fall is about fifty-five inches. The average humidity is not known.

The land is composed of a friable iron stone which, no doubt, contains the elements that give fertility to the soil. This rock, when exposed on the surface to the weather, breaks up readily, and disintegrates rapidly; which, with the vegetable humus gives a sufficient lightness to the soil to nourish a varied and luxuriant vegetation, as shown by the undergrowth and woods which cover the whole Island. Tropical fruits of all kinds grow rapidly, as illustrated by experiments already made. Corn, sweet potatoes, sugar cane, tobacco, and many other tropical products are found. Vegetables from our temperate climate, such as tomatoes, onions, radishes, pumpkins, beans and peas grow readily, but the seeds need renewing annually, as they degenerate in one season. The Island is fertile to the very tops of the hills. No doubt, experiments would develop a greater variety of products. Cattle, hogs, and sheep do well; also horses and mules, chickens, turkeys, ducks, guinea fowl and geese thrive. The native grasses seem to be nutritious, judging from the appearance of the cattle raised on the Island, as their sleek coats, well rounded forms and activity indicate that they receive abundant nourishment.

Quite a variety of birds are found on the Island; no wild animals except the rat. No venomous reptiles exist; the centipede, scorpion, and tarantula are present but their stings, though painful are not dangerous. Several varieties of ants are found, but are not troublesome.

Mosquitoes are in abundance in certain parts of the Island, three varieties of them, one of which has been identified as the *Stegomyia fasciata*. A systematic search, will, no doubt, reveal other dangerous members of the *Culex* family. Of the several kinds of flies, the sand fly is the most annoying.

The waters of the bay, the shores of the Island, and outlying

reefs give a great variety and abundance of edible fish; turtles are occasionally caught, also crabs, and a species of large salt-water cray-fish. I mention these products to show the natural food resources of the Island, sufficient to easily support a population of several thousand people the year round, which is of great importance in case of military seige or blockade. The land water supply is bad; the wells now dug are shallow and the water decidedly brackish and undrinkable. Streams, except in the rainy season, are so impregnated with the iron salts as to make their water disagreeable, though the cattle drink it and seem to relish it. Two or three wells containing fresh water exist in the Island. They contain a high percentage of chlorine, but as they are distant from habitation the impurity is not due to sewage, or dangerous to life. The high chlorine is simply due to their close proximity to the sea. Salt is not perceptible to the taste, and the water is palatable; but it is high in ammonia because the wells are never cleaned out, are unprotected in every way and are filled with decaying leaves, insects, etc.; so the ammonia is readily accounted for. Under these circumstances neither the chlorine nor the ammonia would indicate great danger.

No systematic search has yet been made for water, so it is impossible to give any definite information on that point. Surface indications, however, show that the water from the various streams cannot be relied upon. The rainfall is about fifty-five inches annually, sufficient to secure, by cistern storage, an abundant supply ample for any emergency, if simple, properly built rain-sheds of galvanized iron with sufficient area are erected. These rain-sheds should be well elevated above the ground for reasons too well understood to require explanation. Rain-water is next to condensed water in purity and healthfulness. Several streams are capable of being dammed to hold sufficient water for any uses other than drinking, the distribution of which, through iron pipes could be readily accomplished by gravity from the necessary elevation of the various reservoirs, or from raised tanks kept filled by wind-mill pumps. With an ample potable water supply, absence of great heat and humidity, slight variations in temperature, and a constant wind, we are furnished with the three prin-

cial factors required in the preservation of health, and prolongation of life.

Let us now examine the prevailing diseases so far met with and see if we can draw any deductions from them. The inquiries of Medical Inspector J. C. Boyd, United States Navy, regarding the vital statistics of Culebra, show that a very meagre record was kept in the past, but what he secured is of value in our study. His list gives for the year 1901, twenty recorded deaths, the causes being as follows:—Malarial diseases eleven, Respiratory four, Anaemia one, Digestive system three, Diseases of the circulation—? A list of diseases treated and recorded by Passed Assistant Surgeon H. H. Haas, United States Navy, is however valuable, as it gives his year's experience in treating diseases found among the natives of the Island of Culebra, and the neighboring island of Vieques. They comprise one hundred and eighty-one cases, viz:—

Asthma	1	Tuberculosis	1
Arthritis deformans.....	1	Ulcer of stomach	2
Anaemia	24	Gonorrhoea and syphilis.....	1
Aneurism.....	1	Scabies.....	1
Bronchitis.....	5	Neurasthenia.....	3
Beri-beri	1	Apoplexia.....	1
Brain tumor (syphilitic).....	2	Erysipelas	1
Cachexia.....	17	Dyspepsia.....	3
Cystitis.....	1	Eczema	3
Conjunctivitis	5	Epilepsia.....	4
Contusio	3	Elephantiasis.....	1
Catarrh	1	Gonorrhoea	4
Chancroid	1	Gastralgia.....	1
Dysentery	3	Heart disease	5
Malaria	44	Jaundice	1
Neuralgia	3	Metrorrhagia	1
Rheumatism.....	5	Mammitis	1
Retroflexion of uterus.....	1	Otitis	1
Stomatitis.....	8	Tinea	3
Syphilis	11	Gastritis.....	1

An examination of this meagre record, and the list of diseases furnished by Dr. Haas, will show that the principal diseases are preventable ones. I would call attention, particularly, to the number of cases of malaria. I feel convinced that the cases of

Anaemia, Cachexia, Stomatitis, Neuralgia, Gastralgia, Gastritis, Neurasthenia, and Jaundice are the sequelae of Malaria. If my opinion be correct, we have 106 cases or fifty-eight per cent of diseases that are preventable. Dysentery, and Beri-beri are both preventable troubles. The cases of Dyspepsia, no doubt, depend upon Malaria or Dysentery. If this be true, the percentage of preventable diseases would be somewhat higher. The remaining diseases are of no value in our present study, as they are not confined to any climate or people. Dengue existed among the Marines, but I have not considered these cases as I think that it is generally accepted at present that dengue is transmitted by the mosquito, and probably closely allied to malaria.

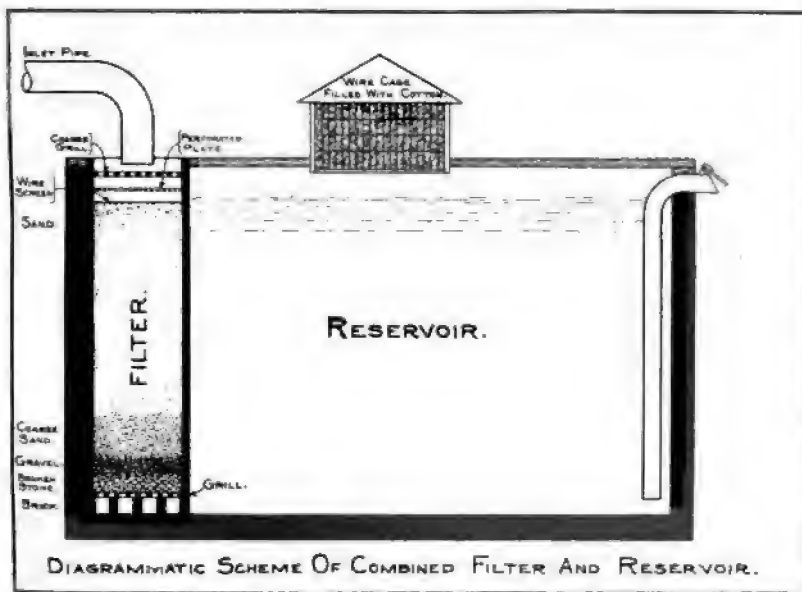
Without entering into a discussion as to the discovery of the fact that the mosquito is the intermediate host, and does convey the malarial germs to the well, or from the infected patient to the well, we assume it is accepted by all, so we will simply look at the question from its sanitary bearing, and consider the feasibility of obliterating the mosquito from Culebra. If this can be done and our deductions so far be true, we will be able to make Culebra one of the most healthful places. The *Anopheles Clavigar* no doubt exists in Culebra, and though, so far as I know, it has not been identified, still there is every reason to believe that it is there. We know that the mosquito requires water in which to breed; that all pools clean or dirty, even the vile putrid liquids of the privy vaults, are the breeding places of some varieties.

When we come to the question, can the mosquito be destroyed at Culebra? I think that there is no doubt that it can be exterminated. I have mentioned in speaking of the physical conditions of the Island, the existence of certain brackish ponds, the water of which is not palatable for man, but is drunk by the cattle of the island.

All of these ponds are shallow, surrounded by a rank growth of trees and grass; in fact they are ideal places for the breeding of mosquitoes. Owing to their close proximity to the seashore (where the beaches will supply an abundance of sand), they can be readily filled by a pumping dredge that would convey over

with the sea-water, sufficient sand to fill them, and make dry ground several feet above their water level. This can be applied to all the ponds I have mentioned. The reclaimed ground, I am informed, would make good cocoanut orchards which would add to the value of the island products. It has been suggested that crude petroleum would be cheaper, I doubt it as it would not be permanent, and is a remedy, I think, only applicable to small pools; for any light steady wind will drive the oil, which floats upon the surface, to one side of the pond or lake, leaving the rest uncovered, so that the mosquito is not checked in his breeding. If once filled the mosquito breeding is checked for all time. I have mentioned numerous swamps or flats that have been formed by the silt brought by the hill washings; these are fruitful breeding places for mosquitoes; they should be dredged or filled, the former would be cheaper and more profitable. By dredging them, increase in the harbor capacity would be effected, and as the matter to be removed is very soft, this dredging could be done at a very reasonable cost. These swamps are partly overgrown with trees or mangrove bushes, which should be cut away, as they prevent the full force of the wind, and, and offer shelter to insects. The streams are, no doubt, fruitful breeding places; this source of trouble could be prevented by trimming simply the edges of the banks to secure a continuous flow of the current, and so controlling the flow as to do away with any sluggish pools, or eddies; the quick fall would give such a swift current that the mosquito eggs would be swept into the bay before they had time to hatch. The third fruitful field for breeding the mosquito is the holes dug by the natives for securing water for their cattle. These shallow wells should be covered tightly, and a simple pump used to lift the water to the drinking troughs; now they are open and make splendid places for the mosquito breeding. As the location of these holes is in low places and devoid of drainage of any kind, the waste water stands in small puddles made by the hoof prints of the cattle visiting the place. A clean cut drain would check that defect. Another breeding place is in the few cisterns on the island; these are so open that the mosquito has free access to them, and they form prime hatching spots.

The question of cisterns is such an important one that I shall dwell upon it more fully, in order to call attention to the defects I have noticed in the cisterns in all the countries I have visited. Cisterns are usually located near dwellings, their whole office to furnish water; the only attention given to them is to secure sufficient capacity, protect them from the sun, and prevent waste through leakage. The water is generally gathered from the house-tops and carried directly by a spout to the cistern together



with all the washings of dirt from the roof. This carelessness existed long before the danger of the mosquito in the spreading of disease was known. Little attention or thought is paid to the prevention of impurities entering the cistern. The same defects still exist, and I have yet to find a single rain-water reservoir that embraces the simplest precautions to procure and preserve the water in good condition. There is no reason why the water as received from the roof, should not be filtered before entering the cistern. No air should be allowed to pass or circulate into the cistern until it has been filtered through cotton-wool; the

overflow pipe should be fitted with a ball or gate valve, so that when the overflow ceases from the filling of the cistern, the pipe is closed. A cistern with these simple additions will not only secure a clean clear water, free from extraneous matter, but will prevent the entrance of animals, insects, or dust, and also check waste by evaporation. The accompanying diagram will convey the idea of a simply arranged cistern.

Enforcement upon the natives of a few simple rules about the care of their dwellings would check another source from which mosquitoes are raised, by compelling proper drainage about the premises. Now, the slops are thrown on the ground, under the houses where the pigs are frequently kept; no drainage existing, water accumulates so that in rainy weather a regular mire is formed with sufficient water to raise mosquitoes in vast numbers.

Covering rain-barrels with mosquito netting should also be insisted upon. The building of roads would check the last breeding places of this dangerous insect. At present there are no roads, only paths that follow the edge of the harbor, or ponds on level ground. Many of these paths in wet weather soon become a mire with innumerable small sloughs and boggy points which are never filled up.

There being an unlimited supply of rock in the Island, easily broken and right at hand, it would be little trouble to build splendid roads, readily drained and easily kept in repair.

Every point in this scheme to exterminate the mosquito has been carefully looked into, and I do not hesitate to say that they are feasible, and easily accomplished, at a small expense. It would be a blessing to humanity. Its judiciousness cannot be questioned, as it would doubly pay for the cost in the comfort gained, the misery and suffering prevented, the diseases banished, and lives saved.

I have mentioned that the shores of the bay are fringed with a dense growth of mangrove trees; which should be cut off. Their peculiar buttressed roots, running below and standing well above the surface of the water, form an intricate mesh work acting as a catch for all floating objects, animal or vegetable, which when once entangled, are held until broken up by decay. The unsan-

itary effects thus produced need not be dwelt upon. This growth also shuts off the wind, and keeps out the beneficial results of the sun's rays on the very place where they are required.

In speaking of the range of hills on the south side, I mentioned a depression at Seine Bay. As this is but ten feet high, at the greatest elevation, I shall dwell a moment upon this natural feature. The depression extends from Seine Bay to Great Harbor, and between the two is Bass Pond. As Great Harbor is a cul-de-sac, there is but little movement of the water in the harbor except the tidal movement. With the present population the refuse and decaying matter entering the harbor are small. If a greater population shall exist, the amount of organic matter added to that from the ships will be increased; in time this might cause injurious effects in the bay, from decaying matter on



Sky Line of Culebra from Target Bay.

The x indicates the depression where the canal is cut.

the bottom, so common in harbors with but one opening. This lowland is of great hygienic importance, as it will allow the construction of a canal to connect the harbor with the sea, making it a double entrance bay. A small canal was dug from Seine Bay to Great Harbor, by the sailors and marines in the winter of 1902. This canal including Bass Pond, which is entered by short cuts from Seine Bay on one side and Great Harbor on the other, has established a current which, when running, sets from Great Harbor into Seine Bay; it has partly drained Bass Pond and, if made deeper and broader, will be of the greatest hygienic value, as it will cause a deep circulation of the waters of the Bay. It is now a great convenience for pulling boats, by shortening the distance several miles from Target Bay to Great Harbor. The canal should be made deep enough to allow small craft, drawing ten to twelve feet of water, to enter and leave the harbor, which

would be of great moment at some time, and must be done as a sanitary measure.

The ridges of hills running off in various directions, form several capacious valleys, which make ideal camp sites for troops, if obliged to be held there as a base. Their locations are masked from the view of the enemy by the hills. The valleys are also protected from the shots of the enemy, and furthermore, are not sheltered from the winds, so that the breeze freely circulates through them; a most valuable feature where a military camp is to be established. These several valleys are now readily accessible by easy graded paths, so that good metaled roads could easily be built and maintained. In fact, every part of the Island could be made easily accessible by good roads by which, from a central point, any part attacked by a landing party could be reached in one-half hour. The grades are so easy that very little engineering skill is required to secure perfect and quick communication.

The beaches, I have mentioned as being so clean and beautiful, I consider of great sanitary value, and should be carefully policed and kept free from all contaminations. For generations to come, they would secure to the garrison and natives a most delightful bathing place free from dangers of heavy surf and treacherous currents, with perfect salubrity of surroundings. It might be well, in passing, to state, that we do not know of the existence in the Island of any intestinal parasites, but as the *Ankylostomum Duodenale* has been found quite frequently in the adjacent Island of Porto Rico, it is fair to assume its existence here; and if it does exist, it may be the cause of some of the cases of Anaemia. This is a question still to be determined. If the life history of this parasite as given is true, we can confidently expect to rid or diminish this Island of its presence if cistern water is used, as its production or development depends upon damp earth, and from the washings of the soil the eggs are carried to the wells and thus introduced into man.

As most of the intestinal parasites are received into the system through the water, it is a question whether it would not be beneficial to enforce the exclusive use of cistern rain-water.

We have thus gone over the salient sanitary questions of Culebra, and we find that the objections that render it unhealthful, are such as to be easily removed; in fact the sanitary problems can be cheaply and readily overcome. The relative smallness of the place, with its compactness, assisted by its attractive and diversified physical features, would render it, when put in a sanitary condition, one of the strongest and most valuable positions for a naval base. I am of the opinion that there is no place in the whole West Indies that is its equal. A study of the sanitary engineering problems that are met with in all our contemplated naval depots or bases in the West Indies, though of the same character that exist here, will require a vast sum to render them healthful from the stand point of modern hygiene. A relatively small amount can place Culebra in a most enviable position regarding its salubrity. Each and every question bearing upon the conservation of health deserves attention, and the deleterious features should be studied, remedied at once or, at least, a beginning made.

The remaining features that I will now take up may be classed under the head of collateral requirements.

If Culebra is to be used as a naval base, it should be turned over in its entirety to the navy and its whole government be directed by the Commander-in-chief of the place on carefully drawn laws by the Navy Department. This would preclude any outside or civilian interference. So long as it remains under the laws of Porto Rico, its future healthfulness will be a matter of grave doubt. Before any definite steps be taken in the way of expenditure of money, this should be settled, for it is manifest that a divided authority in such a place would lead to such difficulties as to seriously prevent that care which a military base demands. Assuming that this relinquishment to the Navy is made by the Insular Government of Porto Rico, we will briefly outline the requirements that should be instituted at once. A careful topographical survey should be made, and every habitation located. A careful meteorological record should be kept, also a careful and accurate record of vital statistics, for these are the foundation stones of hygiene; as nothing can guide us more truth-

fully in the right direction in overcoming defective and deleterious conditions, or reveal the causes of diseases, than such records. A rigid inspection should be made of every habitation; a careful set of sanitary laws should be imposed upon the people: to rest easily and not chafe them; and every encouragement and assistance should be rendered the inhabitants to carry them out. A simple set of regulations should be printed and posted, or distributed, explaining fully the meaning and reason for passing such laws. Such a step would educate the people and gain their confidence and support in all such matters. There are over one-thousand inhabitants in the Island, principally Spanish, or Porto Ricans, some of mixed blood, not many negroes. All are peacefully inclined, and though ignorant through neglect, and indolent from lack of demand for exertion, I still think them capable of great improvement, if properly instructed.

Schools should be established and maintained by the naval authorities, and the children compelled to attend. Settlers or persons desiring a residence, should be carefully examined to exclude all diseased or objectionable characters from finding a residence there.

A careful search for a site for a General Hospital should be made. There are several places available which cover all the requirements, but I think a more careful study should be made before a final decision is reached. The site should be elevated, constantly exposed to the prevailing winds; easily reached by a road, with pleasant outlook and sufficient ground for extensions, if required. It should be fitted with every convenience of a modern hospital, with an operating room, and should include every comfort for the sick. It should be so planned that extension could readily be added to increase its capacity, and these plans for extension should be prepared in advance, for forewarned is often better than forearmed. I am confident that with a well situated place and a properly equipped hospital, all surgical operations or cases would do well, provided the healthfulness of the place were once secured by the sanitary measures I have roughly outlined. Medicine and medical supplies of all kinds should be kept on hand, which means a properly constructed storehouse, as this would be a depot to fur-

nish vessels cruising in the West Indies, and it would be a general rendezvous for our fleet. A smaller hospital should be located convenient to the general landing, for the reception of patients on arriving vessels, in order to prevent delays in getting them under proper care. Delays are fatiguing to the patient and a possible source of danger. The transfer can be made by ambulance later.

Barracks should be built on carefully selected sites consideration being given to the breeze, drainage, and accessibility. Ample floor space, with liberal ventilation and broad generous verandahs, should be the guiding element. The same applies to quarters for officers stationed on the island. Wood is far the best building material to be used. All buildings for living purposes should be well raised from the ground, which should be properly graded and cemented. Ample warehouses should be planned and built so that supplies could always be kept on hand. I cannot agree with Captain Asa Walker, U.S.N., who states, "the question of supplies to be obtained at the points is of little moment in modern warfare. It is better to consider that a fleet or occupying army must depend on their own supply ships for the necessities of life." In time of piping peace, it is difficult to realize the gravity of the situation of our fleet when it left Hong Kong for Manila. It is tersely, but pointedly stated by Lieutenant Elliott, U.S.N., "seven thousand miles from all support, the ports of the world closed against it in cold neutrality." A supply ship is a good thing to accompany a fleet, but she must replenish her stock; and home ports are far away. Loss of ships, mishaps, repairs, non-appearance on time, are to be considered. Distance counts, delays are dangerous; and lack of food is the most dangerous factor we have in producing discontent. Fresh provisions are of the greatest moment. Our experiences during the Spanish War, in the Philippines and also in China, with the recent experience of the English and German in Venezuela, are lessons too valuable to be lost sight of. A refrigerating plant of large capacity should be provided, fully equipped and ready to be put in operation at once, in case of sudden call. To put this off until the demand of the greatest urgency arises is to run a

risk that no excuse could justify. The enormous money losses that have occurred in the past, should teach us to avoid such blunders in the future. It need not be used but be ready for use; its idleness would mean only the interest of the cash invested. Consider the saving in health, time and comfort if it was suddenly demanded and was ready. For a permanent base it is of vital importance that these certain features must exist or be capable of being instantly supplied. Neglect in providing that which we know is in constant demand is to make it a failure. If we can postpone action in any of these matters then our whole argument is merely sophistry.

It would not be seemly for me to venture any suggestions pertaining to the defensive and offensive matters, so I will leave those subjects to those better fitted to deal with them. Contentment among the men and officers, if it can be secured, either on ship-board or at a station is of the greatest moment. When the opposite exists, insubordination with its troubles begin; success is always in doubt, efficiency is lost. Its causes are familiar to everyone of experience in the Navy, still we know how little has been done to remedy the evil. It is said to exist to a larger degree in the Army than in the Navy. I am inclined to doubt this, as there is much monotony in the environment of Navy life. There is little change to the sailor in the elements, sky and water, their varying conditions appeal to his physical comfort rather than his mental content. When the ship is at sea making trips from point to point, here of course, anticipations of strange places, with new scenes and experiences, lend much to relieve the monotony; and frequent liberty arrests the restlessness due to the life, or is sufficient to prevent it becoming permanently fixed.

My observations and experiences, covering twenty-eight years of active service, have led me to believe that progress has been made to improve the condition, and we are still advancing; yet we are far behind where we should be.

I fully admit that the elements are the same on all ships, and stations; the variations met with on various vessels, are due entirely to the personal inclinations and actions of the Commanding Officers.

This is a difficult matter to overcome, for the individual equations of the problem are so various that it is difficult to lay down an exact formula for its solution. Still, certain dominant elements are common to all, and we can examine the two sides and reach a common agreement that will give us a fair average. Two fatal and general errors that exist in our endeavors to secure a betterment are, attempting to judge from the educated officer's position, or view the enlisted man from his standpoint. The intellectual planes are very widely separated in the extreme, but are very closely approached in the means.

The extremists on the two sides are sincere and conscientious, but these two mentalizations do not always lead to the best results. If an individual's rules of life, in moral duties, amusements, or opinions, are forced upon others, resentment is apt to follow. We must admit that such variations exist, and that personal insistence on whims as rules for the government of others, has led to unhappiness and discontent. The two views should be studied together; we can then secure harmony. As one writer put it "One of the proofs of ability for command and administration, is the power to occupy men, not in routine, but in interesting and pleasant work to such an extent that rest and idleness may be welcome as a change, not felt as a burden." Constant mental and much bodily movement is a necessity for all men; it is for the officers to give their men an impulse in the proper direction.

We older officers (and the older we are the more conservative we become) are stiffened in our ideas, as we are in our joints; the non-spectacled eye does not see the present, our vision is far-sighted and we see only the past; we have not kept pace and are behind a little, and we complain that the younger men are out of step. Alas! we are unconscious that our defective ears do not catch the cadence of the band. Let us put on our glasses and we will see that our boys are grown, and things are better than they ever were before, and that we must change our views and help all we can in the advance. I will quote again, substituting the Navy for the Army and sailors for soldiers, as it applies with equal force to the Navy. "The last point which makes the sailor's life less healthy than it would otherwise be is the de-

pressing moral effect of severe and harrassing discipline in our Navy in former years; it is impossible to doubt that discipline was not merely unnecessarily severe, but was absolutely savage. An enlightened public has gradually altered this, and with some Commanding Officers, the discipline of some ships is nearly perfect; that is to say, regular, systematic and unfailing, from its very justice and regularity, and for its judiciousness not felt as irksome and oppressive for the men."

Twenty-seven years ago, I saw a ship in the tropics whose officer of the deck tramped his four hours watch, night and day, with frock coat buttoned up to the chin; the ship was at anchor; he gazed at the sea, and blinked at the sun during the day, leaned against the rail and winked at the stars at night. I have often wondered what the thoughts of those officers were. There were no libraries supplied to our ships then. Of the fourteen officers in the wardroom, two are alive today. One could stand on the poop and see the whole ship from stem to stern, a voice of command could be heard all over the vessel. What a waste of physical and vital energy I thought. Today on our modern Battleships, I see the officer of the deck doing the same thing (without frock coat), walking the deck, when the ship is at anchor. He cannot see beyond the citadel, his voice cannot be heard beyond the gang-ways. I ask myself; is this a waste of energy? I will not answer now. I will simply remark that neurasthenia is becoming more common in the service.

I ask pardon for this apparent digression, but as it has a bearing upon the physical condition of the men of our service, and is applicable in the management of a naval base in order to secure success, I have presumed to speak of it.

I mentioned the effects of a tropical climate upon the physical and vital functions of men from the temperate clime; not a loss of vigor due to disease, but simply a lowered condition. With this in mind we must lessen the demands upon those stationed there; the daily routine must be adjusted to these conditions, the method and time changed to suit the climate, which does not imply the omission of essentials in drill or discipline, but that they must be given in smaller amounts. This is of the

greatest moment when the newcomers first arrive. One is so apt to gauge the physical powers of the men from their endurance upon first arrival, and lay down future actions upon first observations; a fatal error, for we must remember that the energy stored up in the temperate zones is not relinquished or lost at once, it gradually works itself off; and stops at the right time. It does not keep the high standard we demand, nor can we expect that the same dynamic energy can be maintained. Through ignorance of this simple law, we unjustly accuse the men of laziness, or indifference; reprimand; punish; worry ourselves; we even become less active, which we erroneously attribute to the non-support of our command, when it is due to the same causes that have reduced the men. How many times I have seen this done; a good energetic man in authority breaks down his men through unintentional ignorance of this physiological law.

Ennui is a common trouble that prevails in military life, particularly it is so in times of peace, and more so when the station is isolated. Man is naturally a social animal, he likes companionship; it is the same with officers; the mental feelings are just as subject to variations as the physical, in fact they are so dependent upon each other that if one is out of harmony, the other feels it. Mental depression is a common complaint and can be quickly detected if we will watch the command. When good men begin to perform their duties in a listless manner, it is generally an indication of mental depression, or disease. It is worthy of close study. Homesickness, isolation, the infrequency of mails, the lack of amusements or diversions for the mind when the day's routine is over, are the causes. A careful consideration should be given the subject and means devised to prevent it. Every effort should be made to provide a great variety of amusements and diversions. We are an active and athletic race, and enjoy open-air sports of all kinds; and these should be encouraged by providing an athletic field, with every convenience and comfort, such as covered seats for those not actively engaged but equally interested in whatever sport is being indulged in. Many enjoy looking on while others play, but to watch a game of ball or any sport standing in a line on a side of a field, in the hot sun,

is tiresome, tiring, uninteresting, and annoying; then it is only a pleasure to those taking part in the game. Baseball, field sports, boxing, wrestling, basket-ball, hand-ball, tennis, rowing, swimming, and sailing should all be encouraged, and a permanent field set aside as a place for such events, and simple covered stands should be provided for the onlookers. A liberal allowance should be made by the Department for these special features, and all perishable appurtenances such as balls, bats, gloves, rackets, should be furnished, or a certain amount allowed per year, the balance to be secured by personal contributions from the men.

A large well ventilated, plain but strongly built, gymnasium should be provided, which would also answer for a lecture hall or theatre, with a stage and curtain, simple scenery and stage setting for the use of the station. A good band should be furnished and used frequently. Billiards, bowling alleys, with a good well kept commissary store, should also be provided. A library, well stocked with books, a reading and writing room should be furnished, and every facility and encouragement made to entice the men to use it, by making simple and liberal rules, few in number, easily understood, and readily enforced.

Intoxicating liquors should be prohibited on the island and every means adopted to prevent their sale by imposing heavy fines or imprisonment with labor. Such laws, I think, check any tendency in that direction.

If Culebra is considered of value as a naval base, I think the suggestions made in this paper, if carried out, would make it not only attractive to those in the service, but attract others to the navy: Comfort, happiness, efficiency, and above all, health, would be secured. Gratitude, with increasing loyalty, would be the return that the navy would give the country from those who would be assigned to duty there.

MILITARY MEDICAL EDUCATION.*

BY COLONEL JOHN VAN RENSSELAER HOFF,
ASSISTANT SURGEON GENERAL IN THE UNITED STATES ARMY;
SPECIAL COMMITTEE ON PUBLIC SERVICE MEDICAL SCHOOL.

YOUR committee on the Public Service Medical School has the honor to report progress.

The discussion elicited by our report submitted to the meeting of 1903, seems to justify a word as to medico-military education in the United States.

Eleven years ago, in April, 1893, the following memorandum was submitted to an army medical examining board, then in session in New York city: * * *. "In these days of universal education and universal examination we of the Medical Corps must keep step with the procession or be left in the rear. But can we not also profit by the experience of others, and modify our methods accordingly?

"Following the example of the great universities, the United States Military Academy has instituted examinations at many points throughout the country, thereby saving both the Government and the candidate expense. Why should we not follow this course? Many good men would embrace such an opportunity to enter the service who otherwise, because of the expense, would be compelled to remain without. But let us carry this still further, and, adopting the method so successfully inaugurated at Netley, let all candidates who have been approved in the preliminary examination be accepted on probation and sent to a school of application for instruction in the specialties of a medical officer. After six months let them be subjected to a final examination, and, if successful, then let them be commissioned.

"Numerous advantages would follow from this scheme, the quality of the men would be determined, their teachers would

*Report of Special Committee on a Public Service Medical School 1904.

have an opportunity of studying their characteristics and of learning their true value. Even should they not be accepted, the Government would be at no loss, since the training in the school would fit them to understandingly take up the duties of volunteer medical officers when the country should need their services as such.

"This school could be made a continuing source of education to medical officers who at convenient times might be ordered there for instruction, or as instructors, and thereby could be kept in touch with professional advances; moreover, it would supply what seems to me most needed among our medical officers, uniformity in instruction.

"Combined with such an institution could be a school of instruction for the Hospital Corps—in fact, *the proposed school might embrace all the public medical services*, and its possibilities for good would be of the greatest."

Your committee wishes it to be understood that there was nothing particularly original in these suggestions, and certainly nothing impracticable. Some of them had been successfully tried by other nations for a century or more, and our own military academy had already, for a year, instituted entrance examinations at different geographical points. Since then West Point has gone further, and now accepts the diplomas of certain educational institutions as sufficient evidence of preliminary attainment.

The establishment of a military medical school in our service was first publicly advocated by Surgeon General Hammond in 1863,* and was urged with more or less insistence by various medical officers from that time until it was finally established in 1893 by Executive Order, on the recommendation of Surgeon General Sternberg who organized our Army Medical School.

*General Hammond's recommendation reads: "An army medical school in which medical cadets and others seeking admission into the corps could receive such instruction as would better fit them for commissions and which they cannot obtain in the ordinary medical schools, is a great desideratum. Such an institution could be established in connection with any general hospital, with but little if any expense to the United States. A hospital of a more permanent character than any now in this city, is I think necessary, and will be required for years after the present rebellion has ceased. I therefore recommend that suitable buildings be purchased or erected for that purpose. If this is done, the medical school and museum will be important accessions to it."

The probationary feature, though subsequently suggested by General Sternberg, was not introduced, as it was thought such would require the action of Congress, contract surgeons not then being authorized.

The memorandum is therefore quoted simply to show how long it has taken us to accomplish even the smaller part of the plan for adequate medico-military education, and how entirely practical is the proposition that the Government should, nay *must*, educate its own medical officers *ad initio*.

Realizing that war was about due, and that our Nation in arms would certainly be without medical officers unless something was done to educate the civil profession in medico-military affairs, January 1st, 1895, the following communication was addressed to every medical college in the United States: "In view of the present general dissemination of military instruction, through the instrumentality of our schools and colleges, and of the necessity that our medical men should have some special medico-military instruction to fit them to become medical officers in the event of active hostilities, I have the honor to invite your attention to the desirability of introducing into the curricula of the great medical schools of our country a systematic course in military sanitation."

Just ten replies were received, four of which indicated that some such instruction was then being given.

A copy was also sent to various medical journals, requesting editorial comment, in the hope that public attention would be aroused to the importance of the subject. Unfortunately this effort too was generally unavailing, though that the matter was deemed worthy of consideration is evidenced by an editorial in the *New York Medical Record*, March 16th, 1895 as follows:

* * * "There can be no doubt of the desirability of having a reserve force of military medical officers scattered throughout the country, but we question the advisability of adding to the already exhausting labors of our students. The standard of medical education is being constantly raised, and each year new subjects, of great importance, if not of absolute necessity, to the future physician are being added to the curriculum, and until the term of study is greatly lengthened there will be little time for instruction in details of military practice, which in all probability, the physician would never be called upon to undertake. We already have a sort of training school in the medical department of the National Guard, and now

that a national association has formed, this service will doubtless become more and more attractive to the young medical men in the larger cities of the country. Later, when more time is given to medical education, courses in military sanitation, in the duties of National, State and municipal health officers, and in other subjects bearing directly upon the daily work of the practicing physician, may profitably be added to the curricula of our medical schools. And even now it might be possible to carry out Dr. Hoff's suggestion in some of the larger and richer schools, adding the course as an elective study, perhaps, and not at first making it obligatory upon all."

When this question was brought to the attention of a certain distinguished medical teacher, and the suggestion made that he use his large influence to have military hygiene taught in his school, he replied: 'No; I don't believe in it. Medical students now have as much as they can learn, without bringing in outside matters. If the Government wants medical officers, let it teach them.' Yet the British medical schools were then and are now helping to teach their students the duties of the military medical officer.

Three years subsequent to this conversation we were in the midst of war, and the volunteer army was practically without medical officers, though it had many devoted and able physicians.

The Army Medical School after four years of excellent work was suspended for the three years of active service, and resumed its session in 1901. Up to and including the session of 1903-04, its plan of organization and instruction remained practically unchanged.

With this year what is essentially the plan of the British Army Medical School will go into effect, as set forth in G. O. No. 17, War Department, September 16th, 1903, viz:

*	*	*	*	*
(4).	Contract Surgeons who are candidates for admission to the medical corps of the army may be admitted as students.			
*	*	*	*	*

The terms of admission are as follows:

EXAMINATION.

The examination for appointment as Assistant Surgeon in the Army will consist of two parts—a preliminary examination and a final or qualifying examination, as hereinafter described, with a course of instruction at the Army Medical School intervening.

Preliminary examination will be required as follows:

(a) Physical.

The physical examination must be thorough. Candidates who fall below sixty-four inches in height will be rejected. Each candidate is also required to certify "that he labors under no physical infirmity or disability which can interfere with the efficient discharge of any duty which may be required." Errors of refraction, when not excessive, and not accompanied by ocular disease, and when correctible by appropriate glasses, are not causes for rejection.

(b) Written examination in the following subjects:

Mathematics (arithmetic, algebra, and plane geometry), geography, history (especially of the United States), general literature, Latin grammar, and the reading of easy Latin prose—special proficiency in the natural sciences will be accepted in lieu of Latin; English grammar, orthography, and composition will be determined from the applicant's examination papers.

(c) Written examination in the following subjects:

Anatomy, physiology, chemistry, materia medica and therapeutics and normal histology.

The preliminary examinations will be conducted by boards of medical officers at the larger military stations in the United States by questions in the several subjects sent from this office. Formal invitations will be extended to eligible applicants to appear at the most convenient point at which a board is convened and a date will be fixed for such appearance, which will be uniform throughout the country. No allowances can be made for the expenses of applicants undergoing preliminary examinations.

Applicants who attain a general average of not less than eighty per cent in the preliminary examination will be employed as Contract Surgeons and ordered to the Army Medical School in this city for instruction as candidates for admission to the Medical Corps of the Army. If, however, a greater number of applicants attain the required average than can be accommodated at the school the requisite number will be selected according to relative standing in the examination. An applicant thus selected will, prior to employment under contract, be required to make an agreement to accept commission as Assistant Surgeon if found qualified in final examination and that he will serve at least five years thereafter, unless sooner discharged. Contracts with candidates undergoing instruction at the Army Medical School will provide for pay at the rate of \$100 dollars per month, without other compensation or allowances except when traveling under orders, when the usual travel-pay for officers will be allowed.

An applicant failing in one preliminary examination may be allowed another after the expiration of one year but not a third; withdrawal from examination during its progress, except because of sickness will be deemed a failure.

The course of instruction at the Army Medical School will be of eight months' duration, commencing on the first of October next succeeding the preliminary examination; it will consist of lectures and practical work in

such subjects as are peculiarly appropriate to the duties which a medical officer of the Army is ordinarily called upon to perform. During this course of instruction the candidates will be held under military discipline, and character, habits, and general deportment closely observed; if for any reason a candidate should be deemed undesirable his contract may at any time be annulled by the Surgeon General.

The final or qualifying examination will be held at the close of the term of the Army Medical School and will comprise the subjects taught in the school together with surgery, practice of medicine, diseases of women and children, obstetrics, hygiene, bacteriology and pathology. Candidates will also be marked in general aptitude as determined from their service at the school. Candidates claiming a knowledge of ancient or modern languages, higher mathematics, or scientific branches other than medical, may be examined in the same and due credit given in determining relative standing of those commissioned. The candidates standing highest in this examination who attain a general average of eighty per cent and upward will be selected for commission in the order of their standing to fill existing vacancies in the Medical Department. Candidates who attain the requisite general average of eighty per cent and upward who fail to receive commissions because of lack of vacancies will be given certificates of graduation at the school and will be preferred for selection for volunteer commissions and for employment as Contract Surgeons, and they will be given an opportunity to take the qualifying examination with the next succeeding class.

Applications for permission to appear for examination, prepared in accordance with requirements before mentioned, should be sent to the Surgeon General, U.S. Army, and when completed will be filed in this office until the next succeeding preliminary examination shall have been decided upon, when formal invitations to appear before a board will be issued. Applicants are advised to file the necessary papers as early as practicable, in order that the places of examination may be arranged most conveniently to applicants, due regard being had to the interests and necessities of the service.

The organization here outlined is a step in advance, and its success is devoutly to be hoped for, though despaired of.

It is upon this forward step made by the Army Medical School that your committee ventures to report "progress," for it is evident that the authorities are not satisfied with *status quo*, and it encourages the hope that they will not be satisfied until they have developed a perfect organization, which your committee believes can be none other than a Public Service Medical School.

In an interesting article by the present distinguished president [Wise] of our Association, published in Volume XI of our JOURNAL, 1902, an outline is given of the foreign military med-

ical schools, in which he says "we conclude from the considerations presented, 1st, that the leading military powers of the world consider special training necessary for the military medical officer, 2d, that schools where military medicine is taught, and which are owned by the State, exist in all first-class powers."

In a discussion of the paper, the lamented Walter Reed said: "I, for one, am thoroughly in sympathy with the idea which I believe the President [Hoff] in his address this morning mentioned—that is, a combined school for the instruction of officers not only of the army but of the navy and the marine hospital service. I think there is room in this very city [Washington] for the establishment of such a school. I believe Medical Director Wise states that in England it has been found necessary to separate the schools. Just why they need a separate school for the instruction of naval medical officers I do not at present understand. I do not know that naval hygiene differs from military hygiene. I think the crying need is instruction in hygiene in its broadest sense, and I think that we could in a combined medical school manage to train the officers of the three services to very much greater advantage than we can under the present management."

Medical Director Wise in closing the discussion, said: "Appropos of what has been said of the combination of schools for the army and navy, I simply stated the facts. I am something like Major Reed,—I cannot see any very good reason why schools for the army and navy should not be taught in the same building and by the same professors. The fact remains, however, that the English tried the experiment, and that after the army and navy men had been educated together for eight or nine years the naval men eventually took possession of the Haslar Hospital and went into it. I do not wish to be considered as objecting at all to the idea that we could not very advantageously work together."

Your committee is informed that the reason for the transfer of the naval medical school to Haslar was simply because there was not room at Netley for the army, navy and Indian medical probationers.

Those who are familiar with the excellent paper above referred to will recall that of all the schools abroad the British is

the only one which is strictly post-graduate. On the Continent the cadets are, as a rule, educated in the profession of medicine *ab initio*, and while, indeed, graduates are in some cases admitted for a special course precedent to permanent appointment in the army, such are entirely a secondary consideration.

It will be recalled that the arguments advanced by your committee in its last report in support of the proposition that a Public Service Medical School should be established, in which aspirants for commissions in the army, navy and public health service should be taught their profession from the beginning, as are the cadets at West Point and Annapolis, were briefly as follows;

1st. That these services had never yet been able to completely fill the vacancies in their ranks.

2d. That this necessitated the employment of a large percentage of temporary personnel.

3d. That such employees were very costly and the service rendered was not commensurate with the cost.

If these propositions are in accordance with the facts, then the conditions are unsatisfactory, and steps should be taken to improve them, in the most efficient and economical way.

Certainly no one will contend that it is economical to pay two men for doing the work of one, nor doubt that either the Army Medical School or that of the Navy could easily have instructed all the student officers who have yet been in both of these institutions.

We have seen that the attitude of the medical schools of the country is not such as to lead us to hope that they will take much interest in the special training of military medical officers, and finally—

We know that after the age of twenty-seven, the average age of those entering the public services, there is as little likelihood of changing the bent of the individual's mind, as of his body.

Your committee is impressed with the idea that, if we are ever to get unity of thought and action, we must begin the instruction of our medical officers at a time when they are pliable, not after they have become fixed.

The enormous advantages that have come to the sister services through the alumni of the service schools are apparent to all, and those who have been thrown into intimate contact with the graduates of these admirable institutions at West Point and Annapolis, cannot but be impressed with the fact that in all service essentials they think pretty much alike and act accordingly.

It is not so with the medical services; nor is this surprising. A man who, up to the age of twenty-seven, has paid all his devotions to Apollo, finds it difficult to offer sacrifice to Mars; and yet Mars has some rights the military medical officer is bound to respect. What the God of War gets under present circumstances is simply a translation of a prayer thought out in the language of the God of Medicine, much as we oldsters think out our prescriptions in apothecary's weight and then translate them into the metric system. The medical officer must learn to think in both languages before we can hope for the best results.

It is reasonable to presume that very few of those who now enter the public service had any such intention at the time they began the study of our profession. Indeed, many of us are in the service rather as the creatures of circumstance than as the outcome of a predetermination to this end. Possibly we had scarcely heard of the army or the navy or public health service, until some one had said, about the time we were finishing our internship, "why not try the one or the other?" And so, with our minds and bodies educated for and at the bedside, we, through the process of a week's examination, are suddenly introduced into a world of which we know nothing and to duties, except at the bedside, of which we are absolutely ignorant. Can we ever hope for a homogeneous corps of public service medical officers under such conditions.

Your committee thinks not, and it therefore respectfully reiterates its recommendation of last year that a Public Service Medical School be established, and that to this school cadets be appointed, exactly as they are to the military and naval academies, and that the graduates of this school be assigned to the Army, Navy, or Public Health Service, as they may elect, and in accordance with the requirements of the respective departments.

ACUTE RHEUMATIC FEVER AS TREATED BY THE O'CONNOR SURGICAL TREATMENT FOR ACUTE ARTICULAR RHEUMATISM.

By J. BENJAMIN DENNIS, A.B., M.D.

SURGEON IN THE UNITED STATES NAVY.

A COAL PASSER, D. H.; color white; native of Philadelphia, Penna. Age 20 $\frac{1}{2}$ years. Was admitted to sick list 17 April, 1903. For three or four days prior to admission this man had a slight cough, husky throat and malaise. On day of admission pains were present in right hip and shoulder. Treatment: salicylate of sodium. Temperature, P. M. 100 °F.

18 April—Right shoulder swollen. Severe pain. Temperature, P. M. 100.6° F. No appetite, tongue furred, sweats. No cardiac murmurs, but heart action labored.

19 April—Condition worse. Temperature, P. M. 102.2° F. Severe pains in hips, shoulder and knees.

20 April—Both ankles involved. Temperature, P. M. 102° F.

21 April—Knees, ankles and shoulders involved. Temperature, P. M. 102° F. Transferred to Hospital Britanica, Buenos Aires, Argentine, for treatment.

22 April—Condition unchanged. Temperature, P. M. 102.2° F. Heart action labored.

23 April—On this day I had the pleasure of seeing Doctor John O'Connor, senior medical officer of the British Hospital, Buenos Aires, Argentine, operate on this case performing his operative treatment for Acute Rheumatic Fever of joints. A double arthrotomy was done on both knee joints, which were irrigated with normal saline solution under aseptic conditions, and drained by the insertion of rubber drainage tubes. Three or four ounces of serous fluid was removed from each joint. Both ankles were incised in three places, the joints opened and drained by three gauze drains. The right shoulder joint was opened, irrigated with normal saline and drained by a gauze drain. All medical treatment was on this date discontinued.

24 April—Patient was resting comfortably. Temperature, P. M. 99° F. Had a slight cough probably from ether.

25 April—Much improved. No pain. Able to move joints. Temperature, P. M. 99° F.

26-27 April—Doing well. Temperature, 99° F. Patient hungry and could move both knee joints without pain.

28 April—Temperature normal. Drainage tubes removed from knee joints.

On the 29th of April I left Buenos Aires, but the patient with the exception of secondary infection of right wrist joint which was opened and drained on 30 April, had no further trouble. He was returned to the ship on the 5 June, 1903, general health in excellent condition. He was excused from duty for a few days, after which he was sent to duty, and since then or for over one year (June 1904), has had no rheumatic trouble whatsoever; and has performed all the duties of his rating that of coal passer which duty most of you know requires much physical exertion.

In reporting this case which is done with the consent of Dr. O'Connor, it is my desire to bring this surgical treatment of acute rheumatic fever before the Association of Military Surgeons, because I believe that the treatment has much to commend it, and I feel sure that it has much true merit; and that the most convincing proof that could be adduced in regard thereto would be the direct proof that anyone of you would get if you treat one case by O'Connor's method.

Whatever you may be inclined to think in regard to the surgical treatment of rheumatic arthritis I ask of you not to condemn it before you have seen it tried. If you agree with Poynton and Payne that the micrococcus rheumaticus is the true cause of acute articular rheumatism; then if the poisonous material elaborated by that organism becomes localized in certain joints, I ask of you what is the rational means of ridding the system of the noxious matters? Is it not the immediate use of the scalpel under strict aseptic precautions? I think you can answer but in the affirmative. The treatment to be most efficacious should be done immediately on diagnosis in the acute stage.

When O'Connor operated on this case it made his twenty-first case. His first paper on this treatment was published in the *Medical Standard*, Chicago, November, 1897; and in the *Glasgow Medical Journal*, October, 1897. I also invite your attention to his paper in the *International Medical Magazine*, June 15, 1898, and the *Lancet*, January 24, 1903.

For the benefit of those of you who have not the files of the *Lancet* at hand, I quote the following from O'Connor's paper in

that journal, on the Surgical Treatment of Rheumatic Fever. "While advocating early surgical interference in rheumatic fever I cannot too highly deprecate any attempt at the same without the operator feeling assured that he commands all the ordinary essential elements with which to carry out an ordinary aseptic operation. It is obvious that under septic conditions the method of cure might readily be attended with greater disaster than might even originate from the disease itself. To anyone about to put my practice to the test may I suggest (1) do not puncture, open knee joints; (2) ligate all bleeding points; (3) drain, do not cork. Also I wish to insist on the great value of thorough drainage in these cases, for it would be a more imbecile act to close a joint containing such toxæmic stuff than to seal hermetically a recent ischio-rectal abscess cavity. In order to carry this properly into effect in operations on the knee joint an incision an inch long is made on each side of the joint through the capsule. Through both openings a long closed forceps is passed and a fenestrated india-rubber tube half an inch in diameter is drawn across the synovial pouch, leaving about half an inch of tubing presenting at each wound. Drainage having been thus secured the joint is washed out every morning with a jugful of warm carbolic lotion (1-60) and the tube is generally dispensed with on the third or fourth day. Irrigation of the joint is daily continued until healing no longer permits of the passage of fluid. A little superficial necrosis of wound tissue caused by pressure of the drainage tube need not excite alarm as this rapidly disappears under an iodoform dressing. The latter by the way is made fresh for each dressing by immersing pieces of dry sterilized gauze in a solution of equal parts by weight of iodoform, alcohol and glycerine. A little formalin (1 in 500) is added to the mixture before use. In arthrotomy of the wrist and ankle joints drainage is attained by a piece of gauze passed into the joint through the open blades of a dressing forceps previously inserted."

It was marvelous to see the heart action improve, the immediate return of a large appetite, the cessation of pain, and the pleasing change of countenance in the case herein reported on the morning following the operation. O'Connor reports that in

none of his twenty-one cases has he had any secondary involvement of the heart, in which it was not present prior to his surgical treatment. Can the salicylates even begin to say so much? I think not. In closing this report I wish to state that if you will take your case of acute articular rheumatism, and as soon as diagnosed, do O'Connor's operative treatment, I cannot but feel sanguine that you will agree with me in opinion that the aseptic scalpel is several laps ahead of the salicylates in the treatment of acute rheumatic fever of the joints. It remains for the future to prove if Menzer's anti-rheumatic serum will be more efficacious than the immediate use of the scalpel.

A NEW ANTIDYSENTERIC SERUM.

DURING the past few years Rosenthal has made many attempts at the immunization of rabbits and dogs with cultures of the Shiga-Cruse bacillus, as well as with dysenteric toxines. His attempts were crowned with success. The author injected 157 cases with an antidysenteric serum obtained from the horse. Very favorable effects were noticed on the pain and tenesmus; the stools became less frequent; the blood disappeared, and the duration of the disease was shortened.—S. M. DELOFFRE.

HYSTERICAL SLEEP BROUGHT ON BY VACCINATION.

A FRENCH Surgeon, M. Camus, reports a case of hysterical sleep following vaccination in a young soldier. About a minute after the operation he fell to the floor; he was carried to a bed, and given the usual treatment for syncope, but failed to react. He presented the appearance of a man asleep, the pulse and respirations being about normal. His eyes showed the presence of nystagmus, and the pupils were dilated. His jaws were tightly clenched; the five senses seemed abolished; movements of the right leg were noticed at irregular intervals, and lasted throughout the attack. Twenty-six hours afterward he awoke suddenly, having taken no nourishment during that time, and having had no stools nor passage of urine.—S. M. DELOFFRE.

PERFORATING GUNSHOT WOUND OF THE STOMACH.

By CHARLES B. MITTELSTAEDT, M.D.,

RECENTLY CONTRACT SURGEON IN THE UNITED STATES ARMY.

IN view of the high death rate of abdominal wounds and considering the circumstances under which this operation was performed, I consider the details of this case of sufficient interest for your consideration.

On the afternoon of November 29, 1899, while on duty at Imus, Luzon, a Filipina girl, aged twelve, was carried into the field hospital at that place, on a basket hammock swung on a bamboo pole seven feet long. This formed an admirable suspended litter and was carried by two Filipina women, accompanied by the girl's mother. The field hospital was located in an upper room of the Convent building adjoining the church; the other available space was used as quarters for troops. The usual regimental field outfit was at hand. The patient having been deposited on the floor, exhibited on the abdominal surface two gunshot openings, similar in appearance, about the diameter of a lead pencil; the one on the left side (wound of entrance) in the anterior axillary line just below the free border of the ribs; the other on the right side (wound of exit) was between the nipple and axillary line, a little below an horizontal line from the wound of entrance. No active hemorrhage from either wound; the clothing but slightly stained; patient conscious and resting comfortably.

The wounds were caused by either a Krag or a Mauser bullet, probably the first. It is said that the girl was in the rice fields outside of the town either standing or stooping; and it is not known who fired the shot, nor was the bullet found.

Patient was allowed to remain where deposited until all preparations for operation had been completed.

Instruments from the field operating case were boiled; dressings and towels sterilized in Arnold sterilizer and water was boiled in several receptacles and allowed to cool. To one of these was added a handful of salt to make a normal salt solution; and this was later handled by one hospital attendant for flushing the abdominal cavity. An operating table was improvised by placing side by side three wooden folding bed-side tables, as used in army hospitals. This was placed near the open window. Just before giving the anesthetic, chloroform, she vomited about a pint of coagulated blood.

The hands of the operator were cleansed by the brush, green soap and water, and bichloride solution 1-1000, and the skin of the patient was disposed of in the usual manner. the brush, green soap and water, alcohol, ether and bichloride solution.

A two and one half inch median incision was made between the umbilicus and ensiform cartilage and parts of intestines and stomach were brought to view. In the stomach were found two holes, larger than the surface ones and slightly ragged. These were cleansed with the hot saline solution, poured on by the assistant holding the vessel. Loose tissue was disposed of and each opening closed with a continuous silk Lembert suture of four stitches each. The wound of exit involved the omentum at its attachment and this was separated to facilitate suture. The intestines were found intact and there was practically no hemorrhage in the peritoneal cavity.

The bullet in its exit from the stomach had penetrated the abdominal wall, just missing the liver by half an inch, and travelled about three inches between the muscular tissue before its final exit. On the left side the entrance was direct.

During the operation the abdominal cavity was thoroughly flushed several times with the hot saline solution and after a final washing the cavity was closed with silk sutures; no drainage. Sterilized gauze dressing was applied and a little iodoform dusted on the bullet wounds, then an abdominal bandage. There being no accommodations at the hospital, she was carried as before, to the home of a friend.

She was visited on subsequent days. As special diet she received nothing but rice water for a number of days.

There being some fever on the third day the dressings were changed, but nothing abnormal could be found externally. Otherwise she rested comfortably and had no pain.

On the eighth day she was carried to the hospital and sutures removed. On the nineteenth day she was discharged as cured, and she returned to her own home.

She came, however, to visit us a few times after that, and was rapidly regaining her weight which she had lost on her enforced diet. She was then helping her mother with her work as before.

Silk was used as buried suture as it was easily sterilized by being boiled with the instruments.

DISCUSSION.

MAJOR E. M. BROWN, Wash. N.G.—I want to say a word on this subject because it coincides with my full belief of what should be done in such injuries. It has been the consensus of opinion that in time of action surgeons should do very little. Under ordinary circumstances the wounded may receive temporary dressing. If they had been in my hands they would have been operated on on the field. I wish to state this:—I have lived in a

country where a great many difficulties have been settled during the last twenty-five years by the aid of Winchesters or revolvers, and my practice is to operate wherever I find a man with a penetrating wound of the intestines. I have repeatedly, and so have other surgeons, operated in the woods and in mining camps instead of moving the man five or twenty miles to a hospital. We operate right at the place where we find them. For forty years military surgery has not had offered cases demanding immediate attention. We have not had any great battles. Most of our fighting has been of such a nature that only a few were wounded. I was ten months in the Philippines and I saw very few operations done on the field. In great battles we have got to do it. But in the fighting we have had the last ten years I contend that these cases should be treated just as this little girl was treated. I had a number of cases out of Manila, and every one of those cases died because they had to be sent to Manila to be operated on. My main point of contention is that the present status of efficiency in military surgery should be such that the surgeon should be able to operate on those men the same as we do in civil life. If a man in the city is wounded we take him to the hospital. but in the country we do not, and why can we not just as well operate on a man on the field where he fell? I have my own instruments, my own needles and sutures, everything is all ready except the catgut, and that is in the government chest. There is no operation that requires fewer instruments than does the operation of intestinal surgery. I think the American army surgeon should be ready to operate upon penetrating wounds of the intestines on the field where the men fall. It pays in civil practice and I believe it will pay in war. I remember the case of a boy who was shot in an encampment in my own state a few months ago. That boy was shot with a Krag at a distance of twelve to fifteen feet and carried six miles to be operated on. It was almost a parallel case with that the doctor mentioned. The boy was carried six miles and died, when I fully believe he would have recovered if he had been operated on at once. The difference was that one was operated on four hours after the injury and the other a half hour afterwards. Instead of the boy going to the surgeon the surgeon should have gone to the boy.

MILITARY AND NAVAL MEDICINE AT THE LISBON INTERNATIONAL MEDICAL CONGRESS.

THE following topics are among those announced for discussion: *Section of Military Medicine*,—Portable Ration of the Soldier During Campaign; the Purification of the Country Water; Emergency Hospitals on the Battlefield. *Section of Colonial and Naval Medicine*,—Etiology and Prophylaxis of Beri-Beri; Etiology and Prophylaxis of Dysentery in Hot Countries; Mental Diseases in Tropical Countries; Hospital Ships and their Function in Time of War; Tuberculosis in the Navy and its Prophylaxis.

NOTE ON TROPICAL DYSENTERY.

By ALFRED TERRY SHORT, M.D.

MANILA, P. I.

POLICE SURGEON OF MANILA; LATE CONTRACT SURGEON
IN THE UNITED STATES ARMY.

I NEVER see a case of dysentery without having vividly recalled to my mind my first case which time does not seem to efface. In 1901 I was on duty at a one company station at Libmanan, Camarines, P. I. I had been there about six months; it was my first station; we were situated very comfortably for quarters, the troops being in the convent; the hospital of twenty beds was in a new one-story nipa and bamboo house; the troops were in the field constantly, but my principal work had been with malarial fevers and dhobie itch. It was the custom with the men at that time to call everything, of the nature of a diarrhoea, dysentery. Fortunately we had been exceptionally free from anything that I could call dysentery,—at all events our worst cases of diarrhoea would return to duty from hospital in from three to five days,—until Co. L of the 26th Infantry was temporarily quartered with us. About three days after their arrival Private E. presented himself at sick-call, complaining of a wasting diarrhoea and loss of appetite; he was a small man of the thin and wiry type; he appeared to be in a rundown condition physically, which I considered due to the hard field service. With some difficulty and against his will I insisted that he stay in his quarters; the third day he stated his diarrhoea had stopped and begged to be returned to duty so that he could go out with a detachment of his Company. I did not think he was physically fit and advised him to stay in quarters a little longer. In about another week after being returned to duty he again reported at sick call; he was very weak. I at once admitted him to hospital and put him to bed. The following day the pulse was 120, the temperature 100°; stools, green slimy mucous. The third day the general condition was worse; temperature 102°,

pulse 120; vomiting frequent; stools, greenish and bloody in character, very offensive. He became delirious in the afternoon and died in a comatose condition that evening. Unfortunately in those days we were without the facilities for microscopical work, and I believe many cases of amoebic dysentery were not diagnosed and I know were improperly treated.

SMOKELESS POWDERS.

AN investigation on the pathologic effects of the fumes of the high explosives now so generally in use, by Major C. F. Kieffer, U.S.A., Fort D. A. Russell, Wyoming, appeared in the *Journal A. M. A.*, for April 29. A number of different powders were tested regarding the gases given out and the effects on the human system. The latter series was carried out in a room. Dr. Kieffer experimented on himself and on several members of the hospital corps by exploding a carefully measured quantity of the powder in a sealed room containing about twelve hundred feet of air space and observing the effects. The chief symptom was the well-known "dynamite headache," and the fumes seemed to have marked effects on the circulation and heart, with secondary effects on the nervous system. In some cases there was incoördination and diminution of hearing and of vision. Low temperature seemed to aggravate the conditions, and at least one person was found who appeared to be immune. In most cases a certain amount of tolerance is gradually established. Kieffer also mentions a patient seen in Da Costa's clinic who could take six hundred and fifty drops of *spiritus glonoini* without serious effects. According to his findings the gases to which the effects are attributable are carbonic oxid and nitrogen peroxid, especially the latter, though the symptoms are due to the combination of both. To meet the nitrite poisoning endeavor should be made to restore the vasomotor tonus, and strychnia is indicated in full doses. The carbonic oxid will be eliminated rapidly in moderate cases, but in severe intoxications oxygen inhalations and artificial respiration may be required. For the headache, coal-tar anodynes are not only useless, but dangerous. The best remedies are strong coffee and a linseed poultice to the nape, as advised by Key. The danger from these fumes is a real one, as numerous fatal cases testify.

Contemporary Comment.

THE DOCTOR IN MODERN WARFARE.

WELLINGTON, though unlike his mighty foeman he took little personal interest in his sick and wounded, had the sense to perceive that the organization of victory depends largely on the maintenance of troops in full physical vigor. He used to boast that whatever might be his merits as a general he was at any rate a first-rate commissariat officer. To his superiority over the French in this respect he attributed his success. With a large mindedness which has been conspicuously absent in some of those who have come after him, he recognized the military value of the work done by his medical staff. In his day, however, preventive medicine was still in its infancy, and destructive pestilences were, like hospital gangrene, accepted as among the inevitable conditions of war. Now the means of preventing such scourges are known to sanitarians, but the lesson that it is the first duty of a general in the field to use those means has not yet penetrated the military mind in our own and most other countries that call themselves civilized.

For proof of this statement we need look no farther back than the beginning of the present year. It is notorious that the establishment of a new order of things, founded on a recognition of the fact that the prevention of disease is the primary and vital function of the medical service of the army, was so vehemently opposed by the military authorities that the strongest pressure from high quarters was needed to bring it into being. How little they have even now taken to heart the teaching of our terrible experience in South Africa is shown by the readiness with which they fall back into the old ways as soon as any scare that galvanizes them into an appearance of activity dies out. Only one "modern instance" need be cited. Three years ago the Advisory

Board recommended that lectures on military sanitation should be given to the cadets at Woolwich and Sandhurst and to the officers going through the special course of training at the Staff College. It can scarcely be denied that at the present day an intelligent grasp of the sanitary problems which must inevitably arise in a campaign is an essential part of the training of an officer; it is indeed the want of such knowledge in military commanders of the old school that has been the cause of immense waste of life and terrible disasters. These courses have been given during the last two years, and it speaks well for the intelligence of the future officers of the British army that they were thoroughly interested in the subject and fully appreciated the value of the lectures. Now the War Office, for no apparent reason, has reduced the lectures to a number that makes anything like an adequate treatment of the subject impossible. It is the old, old story. South Africa is forgotten, and Manchuria is a long way off; why, then, trouble about things as to which Parliament and the public are alike indifferent? The certain consequences of this short-sighted policy if we should unfortunately be involved in a great war; and in this time of political earthquakes who shall say what a day may bring forth?—have been pointed out over and over again in this journal. But the men to whose hands is entrusted the defense of the country seem to be smitten with blindness in regard to the health of the fighting machines under their direction. Could anything prove this more convincingly than the intention with which that impetuous reformer, Sir John Fisher, is credited of replacing the specially trained medical service of the navy by civilians who will “sign on” for five years, and, after they have got such experience as can be gained in that time, will make room for another batch of raw hands?

Of the disasters brought upon forces in the field by imperfect equipment in the means of defense against disease a most instructive example is presented by the Russian army in Manchuria. It is well known that General Kuropatkin’s movements were seriously crippled by the prevalence of disease among his troops, and there can be little doubt that the inadequate provision for the

proper care of the sick and wounded has been a main cause of the defeat of the Russians. Providence, as Napoleon said, is on the side of the big battalions. But if, through want of efficiency in the medical arrangements, men who could be made fit to serve again are allowed to die or to become useless, the biggest battalions must in time shrink to a degree that will make them an easy prey to a more intelligently directed enemy. This, indeed, seems to us the great military lesson of the war, and, blind as are our authorities, they might, as Lear says, see how the world goes in this direction without eyes.

How well the Japanese understand the part played by the doctor in modern warfare has already been pointed out in the Journal. Some additional details are given by Anita Newcomb McGee, M.D., in the May number of the *Century Magazine*. As supervisor of nurses at the great base hospital at Hiroshima, on hospital ships, and at hospitals on the Yalu River she had ample opportunities of observing, to use her own words, "how the Japanese save lives." Among the many thousands of patients treated at the Hiroshima Hospital before the end of September, there were only fifty deaths of men suffering from typhoid, and a large proportion of these deaths were, she says, actually due to beri-beri, wounds, or other complications. The explanation of this low rate of mortality is, first of all, the great attention paid to sanitation; every case is treated as contagious and rigorously isolated. Dr. McGee further mentions the daily consumption by every soldier of several creosote pills as having contributed to the result. In the Hiroshima Hospital, where only serious cases of wounds, especially those requiring operation, are received, the results of surgical treatment are equally remarkable. Of more than 3,000 such patients received up to the end of September, only forty-seven died. Even more notable is the saving of limbs, for although the hospital is the chief operating centre for the whole Japanese army, only nineteen amputations were performed there in a period of three months, and of these five were of fingers only.

From the figures available, Dr. McGee estimates the total number of deaths from wounds of the whole army of Japan dur-

ing the year after the declaration of war to have been less than 40,000. When one reads, she says, of 10,000 casualties in a prolonged battle, it means, on the average, that approximately one-fifth, or 2,000 men, are killed on the field and as many more die of their wounds as to bring the total deaths to about one-third of the casualties, or 3,300. Probably 2,500 or more of the wounded are able to walk from the battlefield without assistance, and of these 1,500 recover in the field hospitals and soon return to active service. The remainder of the casualties (5,200) are sent to Japan (almost all to Hiroshima), and either they are found incapacitated for further fighting, or, after a varying period in hospital and health resort, they return to take their place at the front again in Manchuria. Probably only from twenty to thirty of these men are operated on before reaching Japan (generally in order to stop hemorrhage), and several times that number require operation at Hiroshima. A fact which goes to show that the bayonet is by no means an obsolete weapon is that it was responsible for seven per cent. of all wounds. In the Japanese army, for every 100 men killed outright about sixty-six wounded die, and almost all these deaths occur before the men can be sent beyond the field hospitals—in other words, the men recorded as dying from wounds are killed by bullet or steel, not by microbes or want of proper treatment. According to Dr. McGee, these results are chiefly due to the intelligent use of the package of sterilized bandages which every soldier carries, and to the rule of not operating on the field. Among the wounded Russian prisoners, on the other hand, in scarcely any case had a regular dressing been applied; they had bandaged themselves with pieces of dirty underclothing, and consequently their wounds were in a shockingly septic state.

Still more striking testimony to the efficiency of the Japanese medical service came from Sir Frederick Treves at the dinner of the Japan Society held on May 3rd. That distinguished surgeon said the Japanese were helping us to solve many of the problems which had been a terror to all European armies. British troops entered a war with many determinations. One was to have ten per cent. sick. This was what they were accustomed to—and

they got it. Now the Japanese were quite content with one per cent. sick, and they got it. Sir Frederick Treves did not say how our allies achieved this result. We will therefore venture to suggest an explanation. It is not that the Japanese are superior to us in the practice of the healing art, but simply that they apply the knowledge which they have learnt from Western nations more effectively to the necessities and emergencies of war.

The first object of the Japanese medical service is to keep the soldiers in good fighting condition. The Chief Surgeon with the United States force in the China Relief Expedition in 1900 reported that the organization of the Japanese provided three skilled medical officers to take care of their sick and wounded for every two provided by any other contingent, and this without taking into account the supplementary *personnel* of the Red Cross Society.

To sum up: Japan has given to the world a striking proof of the inestimable value to an army in the field of a large and well-organized medical department; she has also taught the still more important lesson that the efforts of the military sanitarian to be effective must be supported by the officers and by the men. The appreciation of the value of sanitary measures is a part of the Japanese military training; this is the secret of their unparalleled results in the saving of lives. We have seen how much the authorities of our own fighting forces stand in need of education as to this matter. Once more, therefore, we earnestly invite their attention to the great object lesson now being given by Japan.—*British Medical Journal*.

GUNSHOT WOUNDS IN MANCHURIA.

TO make an intelligent study of military surgery in the extreme Orient, says Professor Nimier (*Le Caducée*), we must await the reports of our colleagues on the scene of hostilities; but they will without any doubt, confirm the results obtained in recent wars and from experiments in time of peace. The Russians are using a 7 mm. .62 ball, weighing 13.7 gm., 30 mm. 50 long, and with an initial velocity of 640 meters. The Japanese, one of 6 mm. 50 calibre, weighing 10.50 gm., 32 mm.

long and with an initial velocity of 725 meters. After the first 1,000 meters of its trajectory, the superiority of the Japanese bullet, as regards its velocity, disappears; it is then less effective than the Russian bullet of larger calibre, which upon striking a body, loses all of its kinetic energy, and produces greater anatomical lesions. The latter bullet, therefore, has the greater stopping power. But war has demonstrated that the stopping power of bullets depends less upon the anatomical lesions produced than upon the morale of the men who are rushing onward with the determination of winning the battle. The Japanese reserves are armed with an 8 mm. Munster rifle; and this fact will allow the Russians to compare the wounds made by the two balls. We have as yet no reports on the following interesting questions: (1) Whether bullet wounds of bones and joints remain aseptic or not. (2) Wounds of the arteries and veins heretofore generally caused true and false aneurisms and arterio-venous aneurisms. (3) The influence of marching on the development of hematomata. (4) Wounds of nerves, and paralysis caused by the involvement of nerves in cicatrices. (5) The actual mortality in wounds of viscera, which must be lower than former wars would indicate, on account of the aseptic character of wounds. (6) Wounds of the skull should add much information to that obtained in the Boer war. (7) Wounds of the thorax seem to be very mild. (8) Wounds of the heart (five cases needing no interference). (9) Wounds of the abdomen pursue a very mild course, and no doubt the Japanese and Russian surgeons will advise non interference. (10) Bullets may remain in the tissues indefinitely because of aseptic character of wounds.—S. M. DELOFFRE.

THE ARMY AND NAVY AT THE BRITISH MEDICAL ASSOCIATION MEETING OF 1905.

THE proceedings of the Navy, Army, and Ambulance Section were opened by the President, Surgeon-Lieutenant Colonel H. W. Kiallmark, who in his introductory remarks said that, according to Major L. L. Seaman, operations in the war between Russia and Japan were not performed at the front; only first aid was given, and the wounded sent to the base

as soon as possible. The three great lessons to be learned from the Japanese lay in their use of the three great life-saving factors—a well-arranged medical commissariat, good transport, and rapid dispatch of the sick and wounded to the base.

A paper by Fleet Surgeon C. M. Beadnell, R. N., on the disposal of the wounded in a naval war was then read; the author hoped in the near future to see specially prepared locations for the wounded laid down in the primary plans of ships, and that they would be cool, well-ventilated, and unhampered by auxiliary machinery. With uniform types of vessels, and the inclusion of a hospital-of-combat in the original plans, there would be little disagreement amongst doctors in regard to the disposal of wounded in a naval war. The hospital-of-combat should, if possible, be double (one forward, one aft) in the larger vessels, but in vessels of medium size a single hospital-of-combat must suffice. The calculation that 10 per cent. of the ship's strength were liable to be disabled probably erred on the side of under-estimation. Watertight bulkheads and partitions, so indispensable to the modern man of war, need not be abolished, but they should, by means of automatic self-closing doors, permit of the moving of the wounded in and out of neighboring compartments. Each hospital-in-combat should be in direct communication with the fighting decks by means of passages distinct from ammunition hoists, and be adequately protected. It had been shown in practice that it was possible by installing a well-protected and well-ventilated place for the wounded to leave the fighting decks unhampered. In regard to hospital ships, they were a *sine qua non* in a modern naval war.

A paper by Fleet Surgeon O. W. Andrews, R. N., on the arrangements for treatment of the wounded in action on board H. M. S. *Magnificent* was then read. In this detailed arguments were put forward in regard to the ambulance instruction which should be given to officers and men and in regard to the dressing stations required. Every endeavor should be made to afford first aid to the wounded where they fell, but the fighting efficiency of the ship must not be interfered with. When the action was over the wounded requiring major operations would be removed to the place arranged for operations or to a hospital ship.

The next paper was by Fleet Surgeon Thomas Austin, R.N., who dealt with the collection and distribution of wounded in a modern cruiser engagement. The author considered that they must look to the shelter of the casemates assisted by the armoured transverse screens for the protection of surgical stations. The sooner the enemy's fire was subdued the fewer would be the casualties; hence the captains of the guns must not have their primary duties interfered with by devoting any of their time to first aid.

Fleet Surgeon E. J. Biden, R.N. then contributed some remarks and suggestions as to the head-dress of certain ratings in His Majesty's fleet; he thought that, in view of the great changes that were taking place in the work to be done, it would be advantageous if the naval straw hat were more generally worn by the men.

BALLAD OF THE MILITARY SURGEON.

AND so in toil, yet not in weariness, they pursue their way, sowing seed of which, they reckon not whether they shall reap any fruit, content because they are in the path of duty; blest if only they see or think that they minister to the welfare of their fellow-man.—*Sir James Paget.*

Poets sing of battle's splendor, how their heroes fought and died
For their country, for their freedom, in their youth and manly pride.
Homer chanted deeds of glory, and undying haloes flung
Round the gods and men of Hellas, when the world was fresh and young.
Deeds since then of fame and prowess, brightening many a battle-field;
Noble hearts like Spartan victors, fighting sank upon their shield.
But the heroes few remember when the laurel wreaths are given,
Have in noble duties perished, or in purer pathways striven.
Who, in sickness and in sorrow, cheered the soldier on his way,
O'er the burning sands of Egypt, in the tropics day by day?
When the scorching sunlight smote him, when the fever racked his brain,
Who then eased the throbbing temples, cooled his lips, relieved his pain?
When his life-blood quick was gushing, and the spirit near its flight,
Who then stopped the precious fountain, changing darkness into light?
Ah! my brothers, scant the glory we for toil and labor reap;
Yet we'll onward, brave and fearless; let our records angels keep.
In the battle-smoke and thunder, facing death with dauntless breast,
Striving in thy sphere and duty, take thy glory—or thy rest.

Townataskim, British Medical Journal.

Medico-Military Index.

MEDICO-MILITARY ADMINISTRATION.

[Automobile ambulances for the service of the garrison of the capital.] *An. san. mil.*, Buenos Aires, 1904, vi, 638-640.

Bill (A) to increase the efficiency of the Medical Department, U. S. Army, together with indorsements by the Secretaries of War and the brief of the Surgeon General, showing the necessity for legislation. Wash., 1904, 8°.

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Editorial Expression.

THE PROJECT OF A FRENCH ASSOCIATION OF MILITARY SURGEONS.

IT looks as if our confreres in France might come to enjoy the advantages of an association similar to ours. We have watched with great interest their efforts to establish the projected "Scientific Association of French Military Surgeons," and wish them success equal to our own.

The credit of launching this enterprise appears to be largely due to Drs. Granjux and Laval, editors of that most energetic young journal *Le Caducée*, which in the four years of its existence has made its way to the front rank of the military medical journals of the world.

Since its first foundation *Le Caducée* has published frequent notices of the Association of Military Surgeons of the United States. It has carefully described in detail the organization of this Association, and has considered that of the scientific associations of military surgeons in Germany and Austria; and finally, in an editorial on the last French Surgical Congress, wherein it remarks that dissensions are rife in the executive council of the Surgical Association, that recent congresses have been barren in scientific interest and have become especially hostile media for the development of military surgery, it gives the first direct suggestion of a scientific association of military surgeons, as follows: "Under these conditions it appears to us that the moment has arrived to give body to an idea which has been in the air for a long time: the creation of a French congress of army surgery." In the next issue is published a letter from an army surgeon, whose name is not given, suggesting that the congress be supported by an association of military surgeons of which the presidents be chosen from the medical services of the Army,

Navy, and Colonies, in rotation, that *Le Caducée* conduct the campaign in favor of the establishment of the association and offer its columns for the publication of the proceedings. Before going further *Le Caducée* obtained the approval of Medical Inspector General Boisseau to the project. It then received a perfect torrent of letters of approval from medical officers of all grades in the military, naval, and colonial services. In its issue of February 6th it publishes the following constitution, which is proposed by the first adherents to the project, for submission to the Minister of War. It will be seen that the organization of the projected association is to resemble that of the Association of Military Surgeons of the United States rather than that of any of the military medical societies in other countries.

Art. I.—There is established, under the authorization of the Minister of War, the Minister of the Navy and the Minister of the Colonies, a society called "The Scientific Association of French Military Surgeons."

Art. II.—Its object shall be the study of medicine, surgery and hygiene, as related to the sanitary condition and the medical service of the army, and the well being of the soldier.

Art. III.—The medical officers on the active list of the Army, the Navy, and the Colonial Service, have the right of membership in the Association if they demand it, and have the right of continuing in membership after their retirement or resignation from the service.

Art. IV.—Military Surgeons who have retired or resigned from the service and were not members of the Association while they were on active duty shall be eligible for membership, but must be proposed by two sponsors and elected by the General Assembly before they can be admitted.

Art. V.—The medical officers, whether active, retired or resigned, who have inscribed their names as members of the Association before the publication of this Constitution, are designated "Charter Members."

Art. VI.—Medical officers of the Reserve who have never belonged to the Medical Corps of the regular service may be elected members of the Association, under the same conditions as noted in Art. IV, but with the additional proviso that their number shall not exceed one tenth of the number of admissions from the regular service.

Art. VII.—Foreign military surgeons may be elected Corresponding Members of the Association by the General Assembly.

Art. VIII.—The headquarters of the Association shall be at Paris, at the residence of the General Secretary.

Art. IX.—The presidency of the Association shall be held by the Medical Inspector General of the Army, of the Navy, and of the Colonial Service, in turn, or by a person delegated by such Medical Inspector General.

Art. X.—The Association shall be administered by an Executive Board which shall consist of the President and :

1. Two Vice Presidents chosen from the two services of which the President is not a member.

2. A General Secretary, who shall reside in Paris.

3. Four Secretaries of sessions; one from the active list of each of the three medical services, and one retired medical officer.

4. A Treasurer.

Art. XI.—With the exception of the President, who shall be nominated as provided in Art. VII, the Executive Board shall be elected annually by the General Assembly.

Art. XII.—Until the first General Assembly, the charter members shall constitute a Provisional Executive Board.

Art. XIII.—The Executive Board shall convene whenever one of its members shall consider a meeting necessary.

Art. XIV.—The Association shall hold a meeting on the ——— Thursday of every month excepting August, September, and October. In August and September there shall be no meetings. The date for the October meeting shall be chosen so as to coincide with the manoeuvres of the medical service of the military government of Paris.

Art. XV:—The October reunion will constitute the General Assembly, which shall proceed at once to elections. Directly after the General Assembly there will be held a scientific session which shall constitute "The French Congress of Military Medicine and Surgery."

Art. XVI.—The annual dues shall be six francs.

Art. XVII.—This constitution cannot be amended except by vote of the General Assembly, together with the approval of the Ministers designated in Art. I.

The organization projected is admirable and it is hoped that so promising a proposition will not be allowed to lapse.—CHARLES NORTON BARNEY.

CORRECTION IN COLONEL IMBRIACO'S PAPER ON
THE MEDICAL SERVICE OF THE FRONT.

THE paper of Colonel Imbriaco in the last JOURNAL, upon the Medical Service of the Front, was twice translated,— from Italian into French and from French into English,— and in these operations the word "cavities" in the plate on page 89 became altered to "cavalry." The "Fifty bed hospital for cavalry" should have read "Fifty bed hospital for cavities," referring to the abdomen, chest, and cranium. After the word "Conclusion" on page 92, the author would insert the words "types of," making the first sentence read "Types of Aseptic and Anti-septic Medication."

SOCIÉTÉ DE MÉDECINE TROPICALE.

THERE was founded in Paris, December 11th, 1903, by graduates of the "Institut de Médecine Coloniale de l'Université de Paris," a "Société de Médecine Tropicale," the object of which is the special study of tropical diseases and of questions of hygiene pertaining to hot climates.

The membership is open to physicians and surgeons in good standing of all countries, and to such other persons as may be interested in the welfare of the white race in the tropics. It comprises Honorary, Active and Life members, and Benefactors. The Honorary membership is limited to ten, and is to be conferred only upon the most distinguished tropical medical authority of any one country. Honorary members pay no dues and receive free all publications of the society. An application for Active membership must be addressed to the President of the Society, and be endorsed by two members. It will be acted upon at the following monthly meeting. The dues of an Active member are twenty francs per annum, or about \$4.00. There is no initiation fee. All Active members will receive the *Revue de Médecine Tropicale*, and all other publications which may appear later. The cost of a Life Membership is three hundred francs, or about \$60.00. The title of Benefactor is bestowed on those who contribute five hundred francs, or about \$100.00, or more.

The officers of the society are at present: Honorary Presidents, Professor Brouardel and M. Doumer, former governor of Cochinchina; President, Professor Le Dentu; Vice-President, Professor Blanchard; Secretary, Professor Wurtz; two Assistant Secretaries, one Treasurer and one Librarian. In addition to these officers, there is a Board of Directors consisting of nine members of various nationalities.

The Society meets on the fourth Wednesday of each month, at the Laboratoire de Parasitologie de la Faculté de Médecine, 15 rue de l'Ecole de Médecine, Paris, France. It would be advisable for those who may wish to join this society to forward their applications through Captain Henry du R. Phelan, 11 Van Ness Avenue, San Francisco, California, one of the Board of Directors of the Society, and at present its only Active member in the United States, as all applications require the endorsement of at least one member.—H. DU R. PHELAN.

THE GERMAN FIRST AID DOG SOCIETY.

THIS Society presided over for the past twelve years by the animal painter Bungartz, experimented successfully with its dogs in searching for the wounded during the Russo-Japanese war in 1904. In this year the Society was under the patronage of the Grand Duke Frederick of Baden; and the dressing station at Cologne was visited by many foreigners, who came to get information on the subject. The German expedition to South West Africa furnished the occasion for sending one of the first aid dogs with the detachment. Unfortunately it died in Africa before it could render any services. Three dogs were trained for the Russo-Japanese war, and were sent to Manchuria, where they arrived in good condition. President Bungartz was called to St. Petersburg to make a report on his work with these animals. He learned there that his dogs had discovered, in Manchuria, twenty-three wounded whose whereabouts were not even suspected, and who would have certainly died without the dogs.—SAMUEL M. DRLOFFRE.



The Fourteenth Annual Meeting.

ARRANGEMENTS are well advanced for the Fourteenth Annual Meeting of the Association of Military Surgeons of the United States, which is to convene at Detroit, Mich., on the 26th, 27th and 28th of September. The social features planned by the Committee of Arrangements are numerous and delightful. Their plan begins on the day before the meeting and day follow-days of the permitting for the exten-hospitality them.

The old troit which its to call the Straits," is most charm-the United



View on the Campus Martius.

the earliest times a spirit of profound civic pride has prevailed among its citizens. The original plan of the city, imitated by Washington, consisted of a central focal point with radiating avenues. At the central point or Campus Martius was located the administration of the town, the City Hall and the market

ends on the ing, the three meeting not sufficient time sion of the proposed by

city of De-lovers delight "City of the one of the ing places in States. From

place, while a little farther away from the river, upon the main artery of travel, was placed a second focus known as the Grand Circus, from which also radiated broad and stately avenues.

If, with a growth unexpected and beyond the most sanguine dreams of the founders of the city, this plan has been outgrown and has developed of necessity into a plan more along the ordinary checkerboard arrangement, there is still enough of the original to accentuate the beauty of the city.

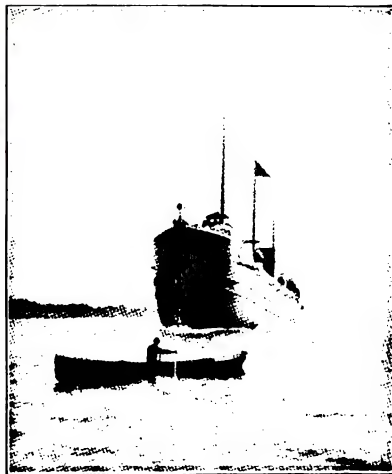
Detroit has been particularly notable for the fineness and elegance of its home life and this has reacted upon the homes themselves, vastly to the devel-



Grand Circus Park.

opment of her hospitality. No organization has ever met in the city of Detroit which has not carried away with it an abiding sense of the great courtesy and friendliness of her people.

Situated upon a wonderful fresh water channel, Detroit is one of the greatest ports in the world, her port entries amounting in the year to more than those claimed by many of



Delivering Mail on the Detroit River.

the largest seaports, and the enormous products of the vast territory bordering upon the Great Lakes and which pass her doors are sufficient to supply the granaries of many nations.

The medical profession has always stood high in Michigan and Detroit; her medical schools are famous and of a high grade; the state has stood high in military circles; many of her sons lie in the soil of southern battlefields and many more have been glad to offer their lives in the service of their country. From this combination of the military and the medical features of Michigan and her great commercial and social capital, the Association may well expect much and in expecting much may be sure of underestimating the future.

The Committee of Arrangements has selected for the headquarters of the meeting, the famous Hotel Cadillac one of the most sumptuous and celebrated hostleries of the country. Here the members will receive the most hospitable consideration and the most considerate hospitality. A splendid auditorium within the walls of the Cadillac will also afford ample room for the various meetings of the Association.

The railway passenger associations will extend to members attending the meeting the usual reduced rate of a fare and a third for the round trip. *To assure this rate, each person must purchase, not earlier than three days before the meeting one first-class ticket to Detroit, Michigan, and obtain from the ticket agent a certificate to that effect.* THIS CERTIFICATE IS ABSOLUTELY ESSENTIAL, as the reduced rate of one-third the regular return fare will be allowed only upon the presentation of this certificate, duly endorsed by the Secretary of the Association and the representatives of the railways, to the ticket agent in Detroit.

The international feature will be prominent in this meeting as in most of our later conventions. The presence of the Chief Surgeon of Admiral Togo's combined fleets, brings this Association in touch with the latest military surgery, while the attendance of distinguished British, Mexican, Canadian, Guatemalan and other Military and Naval Medical officers will add much to the interest of the meeting.

Preliminary Program.

MONDAY, SEPTEMBER 25, 1905.

8.00 O'CLOCK P. M.

Meeting of the Executive Council.
General Reception at the Hotel Cadillac.

TUESDAY, SEPTEMBER 26, 1905.

10.30 O'CLOCK A. M.

Reports on the work of the Association, during the year, 1904-1905, by the Officers and Committees.

1. Report of the President.
2. Report of the Executive Council.
3. Report of the Secretary and Editor.
4. Report of the Treasurer.
5. Report of the Literary Committee.
6. Report of the Publication Committee.
7. Report of the Necrology Committee.
8. Report of the Transportation Committee.
9. Report of the Committee of Arrangements.
10. Report of the Committee on Legislation.
11. Report of the Enno Sander Prize Medal Board of Award,
12. Report of the Seaman Prize Board of Award.

The Training of the Medical Officer of the State Forces to best qualify him for Local Service and for Mobilization with National Troops. By the Winner of the Enno Sander Medal for 1905.

A twenty minute abstract of the successful essay in the competition for the present year.

The Prevention of Disease in the Army and the Best Method of Accomplishing that Result. By the Winner of the Seaman Prize for 1905.

A precis of the successful essay in the competition for the prize of five hundred dollars, offered by Major L. L. Seaman for 1905.

TUESDAY, SEPTEMBER 26, 1905.

2.00 O'CLOCK P. M.

Routine Instruction to the Hospital Corps of the National Guard. By Major William G. Bissell, Surgeon N.G.N.Y.

The author endeavors to demonstrate that owing to lack of time with National Guardsmen the best results seem to be accomplished with the Hospital Corps by confining the "armory instruction" to class recitations, aside from that which is purely of a military nature. Such can only be carried on by the use of a suitable textbook adaptable to National Guard limitations. Suggests the adoption of a course of instruction similar to that proposed by the board organized under G.O. 16, 1904, A.G.O., New York State, to consider the matter.

A Suggestion for the Greater Efficiency of the Organized Militia. By Captain Charles S. Butler, M. V. M.

The author urges the desirability of instruction in field hygiene for both officers and soldiers of the line and suggests that it cover the subjects of Water Supply and the Dangers of Impure Drinking Water; Camp Pollution; Care of Health on the March; Care of the Feet; Diet and Suggestions as to Cooking; Personal Cleanliness, Bathing; Ventilation; Physical Training and Personal Excesses.

The Plan Proposed for a Brigade Hospital on a Tour of Field Service and the Realization Attained. By Lieutenant Colonel Eugene A. Smith, Brigade Surgeon N. G. N. Y.

The plan is to have a modern hospital adapted to field use. A discussion of the means to equip such hospital and methods of obtaining such means under rules and regulations by requisition and through regular channels naturally follows. The practice march and field service to be described occurred between August 12 and August 19, 1905. The present method can never cope with the medical and surgical questions that arise in emergency of sudden actual service, especially in the event of battle.

Discussion on the Use of Stretchers on Board War Ships. By Surgeon General S. Suzuki, I. J. N.

A presentation of the problem of transportation of the wounded as coped with on the Japanese fleet.

A Few Minor Details to be Observed on Board Ship Preparatory to Going into Action. By Surgeon Joseph C. Thompson, U. S. N.

A Plea for the Unification of the Duties of Medical Officers of the Army and Navy. By Surgeon Charles F. Stokes, U. S. N.

Medical Officers of the Naval Militia and National Guard included. Basis of existence the same. Preliminary requirements alike. Service school instruction along the same lines with modifications to meet the peculiarities of service afloat and service ashore. The aims, personnel and material should as far as possible be the same. Esprit de corps in and healthy rivalry between the various branches of the service should be encouraged.

The Association of Military Surgeons is of peculiar value in that it brings together military surgeons for the purpose of discussing various matters of interest to them in which discussions all are on an equal footing. The most important problem to be solved by military surgeons is the training and drilling of the enlisted men in the working details of military hygiene and first-aid methods. The early education of the line officers in these matters absolutely necessary.

The Service of Negroes in Hospital Corps Detachments. By Captain J. H. Ford, U.S.A.

Organization for Instruction in Colonial Medicine. A translation from the French of Brouardel. By Surgeon Sheldon G. Evans, U.S.N.

Mexican Transport Model for Carrying Wounded in Mountainous Countries. By Lieutenant Colonel Alejandro Ross, Mexican Army.

A description with model of an appliance of particular service in the irregular terrain of Mexico, submitted by the professor of the department of transportation of the injured at the Medico-Military School of Application of that country of great variations in landscape.



View in Belle Isle Park.

TUESDAY, SEPTEMBER 26, 1905.

4.30 O'CLOCK P. M.

Tally-Ho tour through the city, parks and boulevards, with supper served at the Detroit Yacht Club, overlooking the river, on Belle Isle Park situated on a beautiful island,—one of the thousand about which roll the majestic waters of the great lakes.

TUESDAY, SEPTEMBER 26, 1905.

8.00 O'CLOCK P. M.

Public Meeting.

Overture	-	-	-	-	-	-	-	-	-	-	<i>Band</i>
Invocation	-	-	-	-	-	-	-	-	-	-	
Selection	-	-	-	-	-	-	-	-	-	-	<i>Band</i>
The State of Michigan. By Hon. Fred M. Warner, Governor of Michigan.											
Selection	-	-	-	-	-	-	-	-	-	-	<i>Band</i>
The City of the Straits. By Hon. George P. Codd, Mayor of Detroit.											
Selection	-	-	-	-	-	-	-	-	-	-	<i>Band</i>
Michigan in War. By Hon. Russell A. Alger, U.S. Senator from Michigan.											
Selection	-	-	-	-	-	-	-	-	-	-	<i>Band</i>
Detroit as a Host. By Hon. William C. Maybury, formerly Mayor of Detroit.											
Selection	-	-	-	-	-	-	-	-	-	-	<i>Band</i>
The Annual Address of the President. By Surgeon General Walter Wyman, Public Health and Marine Hospital Service of the United States.											
March	-	-	-	-	-	-	-	-	-	-	<i>Band</i>

WEDNESDAY, SEPTEMBER 27, 1905.

10.30 O'CLOCK A. M.

A New Type of First-Aid Dressing. By Surgeon Charles F. Stokes, U.S.N.

Aim, a dressing that can be applied satisfactorily by the least intelligent enlisted man. The whole dressing a single piece secured without pins. Compresses to contain an effective antiseptic. Two wounds at different levels considered. The triangular bandage included. Covering of tin with a soft patch for opening, or of a suitable water-proof fabric.

A Series of First Aid Packets. By Major George H. Halberstadt, Brigade Surgeon, N.G.Pa.

A description of first aid packets especially devised for use in the Pennsylvania coal regions.

An Emergency Case for Field Work. By Lieutenant Colonel Leonard B. Almy, C.N.G.

The advantages of having a case for hypodermatic medication on the medical officer's person. Description of the author's pistol cartridge-box case always on the belt. List of contents. Its uses obvious.

A New Hypodermic Syringe. By Lieutenant William W. Reno, U.S.A.

Every hypodermic syringe case upon the market except the one described is incomplete as outside assistance is needed, in the shape of water, mixing chamber and means of sterilizing needle, before a hypodermic injection can be given. This syringe case is complete in itself as sterile water, a sterile mixing chamber and sterile needles always ready accompany the syringe in a case no larger than the old style. The syringe too is improved.

Experiences During the Russo-Japanese War. By Surgeon General S. Suzuki, I.J.N.

The author, as chief surgeon of Admiral Togo's combined fleets from the outbreak of the war between Japan and Russia to the close of the battle of the Japan Sea had exceptional opportunities for reading the lessons the experiences there brought out.

The Application of Laboratory Methods on Board Ship. By P. A. Surgeon Alfred W. Balch, U.S.N.

Sterilization, bacteriological diagnosis, examination of the blood, faeces and urine, and tissue examination on board ship.

The Initial Examination of the Recruit. By Hugh Hamilton, M.D., Medical Examiner of Recruits, U.S.A.

1. The importance of the initial examination of the recruit. 2. Description of a method adopted at Harrisburg, Pennsylvania. 3. With comments as to its use from experience. 4. In order to secure a maximum standard of men from among those placed before one to be examined. 5. To reduce to a minimum the rejections through inspecting boards at depots or posts for physical defects found in enlisted men recently received from recruiting stations. 6. To raise the physical standard of any army.

Military Medical Heroism. By Major James Evelyn Pilcher, U.S.V., Captain U.S.A.

Valor an essential in medical work of all kinds, civilian as well as military. The medical man always in combat with enemies of dangerous type; these enemies are more or less constantly present with the military surgeon. Illustrative cases. But the military medical man frequently has opportunities for the display of bravery in action, and the instances in which he has so acted are numerous. The iron cross, Victoria cross, medal of honor. Illustrative cases.

Presentation of Insignia to Foreign Delegates.

WEDNESDAY, SEPTEMBER 27, 1905.

2.00 O'CLOCK P. M.



The Museum of Art.

[During this session the ladies will be taken in carriages to the Museum of Art and entertained by the Director, Mr. Griffith.

The Detroit Museum of Art is a superb example of the great new art movement, which is finding its development in the United States, and the opening of its doors under such pleasant auspices promises much enjoyment as well as instruction for the guests of the occasion].

Alcohol a Depreciating Factor of Efficiency. By Surgeon George A. Lung, U.S.N.

A professional view of the subject with brief historical sketch. Gradations from drinking a folly, drunkenness a vice, inebriety a disease. The economic value of the negative virtues temperance and abstinence. Application of the lesson to the individuals of an organization where high physical and mental standards are essential.

Practical Methods for Purification of Drinking Water. By Brigadier General William H. Devine, M.V.M.

This paper as its title implies, will treat only on the practical methods for the purification of drinking water. The author has had much experience in the caring for water supply at military encampments, and the subject as treated in this paper will deal only with the care of water supply in military camps. Distillation, boiling, chemical disinfection, and other means of purifying drinking water will be briefly considered.

A Virulent Outbreak of Tuberculosis in a Gurkha Regiment. By Colonel H. Hamilton, C.B., Indian Medical Service.

An account of an experience with tuberculosis in one of the regiments of the British-Indian Service, with details of the attempts made to relieve the causative conditions and institute a satisfactory regime.

Note on Dermatobia Noxialis. By P. A. Surgeon Allan Stuart, U.S.N.

A description, with illustrations, of a case of infection by *Dermatobia Noxialis*.

The Anatomical Characters of *Opisthorchis Sinensis* and the Statistics of its Occurrence in the United States. By P. A. Surgeon M. J. White, P.H. & M.H.S.

A detailed discussion of the characteristics of the distoma sinense, with suggestions as to its diagnosis, treatment and prophylaxis.

Malaria and Mosquitoes at Lucena Barracks. By Captain Henry Page, U.S.A.

A description of measures put in force in a malaria infected post in the Philippines with favorable results, accompanied by a series of questions and answers prepared for the instruction of the laity in connection with the prevention of the spread of the affection.

Appointment of the Nominating Committee.

The Association Photograph.

Visit to the Scientific Laboratories of Parke, Davis & Co.

WEDNESDAY, SEPTEMBER 27, 1905.

8.00 O'CLOCK P. M.

Theater Party for Officers and Ladies.

THURSDAY, SEPTEMBER 28, 1905.

10.30 O'CLOCK A. M.

Effects of Climatic Extremes on the Health of Battle Ship Personnel. By Surgeon Corben J. Decker, U.S.N.

Medical and Surgical Observations During a Three Years Tour of Duty in the Philippines. By Major John M. Banister, U.S.A.

Personal observations during the great cholera epidemic, with photographs of the cholera dead and their treatment in the cemetery at Iloilo, Panay, in 1902 during the height of the epidemic. Beri-beri as affecting the native troops and views upon its prevention and suppression founded upon the writer's experience while Chief Surgeon Department of the South Philippines and Chief Surgeon Department of the Visayas. Dysentery in the Philippines. The extensive prevalence of amoebic dysentery and the means of prevention and treatment. Sprue and its management. The great prevalence of pulmonary tuberculosis in the Philippines and the rapid progress of the disease in infected Caucasians. The type of malarial infection most commonly observed in Manila and throughout the islands. The comparative rarity of typhoid fever in the islands, and the entire absence of scarlet

fever, diphtheria and yellow fever. The prevalence of intestinal parasites in the native population, and the occurrence in American troops of uncinariasis. Small-pox and Plague. Pneumonia and other diseases of the respiratory apparatus, with the exception of tuberculosis, of comparative rarity. Surgical work in the Philippines. With a rigid aseptic technique skillful surgical work in the Islands is followed by as satisfactory results as in any country in the world and septic infection can be as surely banished as in the United States. These facts proved by the writer's experience at the First Reserve Hospital, (now Division Hospital) Manila, where he was chief operator from January 19, 1903 to about the middle of April 1903, and commanding officer, and chief operator as well, from June 23, 1903, to March 1, 1905.

Difficulties in the Diagnosis of Yellow Fever as Seen on the Isthmus. By Holcomb C. Curl, U.S.N., Superintendent of the Colon Hospital.

Peculiar difficulties in diagnosing yellow fever at Panama. Diagnostic methods. Prevalence of malarial fevers. Clinical features of yellow fever. Routine autopsic work and its value. Reports of cases.

Beri-Beri or Alcoholic Neuritis? By P. A. Surgeon J. S. Taylor, U.S.N.

In the author's experience the majority of cases of beri-beri were in hard drinkers. No cases have been reported among American women in the Philippines and it is suggested that many of the cases diagnosed as beri-beri should be most probably alcoholic neuritis.

Beri-Beri and Dhobie Itch. By Dr. Julius M. Purnell, U.S.A.

A brief discussion from practical observation. The author believes that beri-beri is produced by a toxin generated by a germ living in the patient's surroundings, which being inhaled by man produces a specific neuritis.

Beri-Beri at the St. Louis World's Fair. By Captain Llewellyn P. Williamson, U.S.A.

Liver Abscess at Guam, S.I. By Surgeon James F. Leys, U.S.N.

A report of six cases, three of which were not incident to or following upon dysentery, but clearly referable to other causes.

"A Sure Cure for Asthma." By Dr. Alfred T. Short, U.S.A.
An interesting case of Filipino medical folklore.

Otitis Media and Mastoiditis as a Sequel of Influenza. By Lieutenant Charles D. Center, I.N.G.

A discussion of the subject in its pathological and therapeutic aspects, with especial attention to the comparatively short time from the beginning

of the attack of influenza to the development of symptoms of otitis or mastoiditis; the slight pain experienced by these cases when the abscess was limited to the middle ear; and the fact that persons of any age are liable to the disease.

THURSDAY, SEPTEMBER 28, 1905.

2.00 O'CLOCK P. M.

Traumatic Neurasthenia. By Captain Vertner Kenerson, Assistant Surgeon N.G.N.Y.

Relation of injury to railroad accidents, applications for pensions, etc. Need of separation of cases for discussion from medical standpoint. Those with "cause of action" and those without. Practically those applying for pensions or damages do not make the same progress as those who are convinced that their case is hopeless or who secure final monetary compensation. Division of cases; report of cases. Consensus of opinion and experience in treatment. All cases do better under hopeful management which is almost entirely nullified if action has not been settled.

Inguinal Adenitis. By Surgeon George Rothganger, U.S.N.

The treatment of suppuration of the inguinal glands by dissection; the influence of etiology upon treatment.

Gunshot Wound of the Abdomen. By Assistant Surgeon Tully Vaughan. P.H.&M.H.S.

A review of fourteen cases of abdominal perforation by gunshot, with comments and conclusions.

A Case of Peritoneal Wound. By Captain William H. Wilson, U.S.A.

A report of a case of abdominal injury inflicted by the horn of a carabao, with much accompanying infection, but with prompt recovery under antiseptic treatment.

The Treatment of Gonorrhoea by Irrigation. By Dr. William Grey Miller, U.S.A.

Gonorrhoea and its Treatment from the Standpoint of a Military Surgeon, with Especial Reference to the Sequelae. By Lieutenant Robert M. Thornburgh, U.S.A.

Hearing Affections and Military Service. By Emil Amberg, M.D.

The Influence of Free Nasal Respiration; the Need of Nasal Respiration for the Greatest Efficiency of the Individual. By Major Wm. Sohler Bryant, U.S.V.

Results of Examination of Recruits for the National Guard.
By Major Charles Adams, I.N.G.

A summary of the experience of the Illinois National Guard during the years since the Spanish-American War, in which the examiners have adhered as nearly as possible to regular army rules and forms.

A Proposed Regimental Medical Supply Table for the National Guard. By Captain Samuel Cecil Stanton, I.N.G.

A consideration of the different needs of the National Guard and the regulars, with a suggestion as to the means of best meeting the requirements of the former.

Papers, the titles of which have not yet been received by the Literary Committee, by Surgeon H. W. Austin, P.H.&M.H.S., General Nelson H. Henry, N.G.N.Y., Colonel William C. Gorgas, U.S.A., Lieutenant M. A. DeLauey, U.S.A., and Captain Henry du R. Phelan, U.S.V.

Report of Nominating Committee.

Installation of Officers.

THURSDAY, SEPTEMBER 28, 1905.

4.30 O'CLOCK P. M.

Trolley excursion to Orchard Lake, Pine Lake and Cass Lake, for officers and Ladies.

FRIDAY, SEPTEMBER 29, 1905.

10.00 O'CLOCK A. M.

Special steamer excursion for Officers and Ladies over Lake St. Clair, to the "Venice of America," the St. Clair Flats, with dinner at the famous Star Island House, continuing up the St. Clair River and returning to Detroit at about five o'clock in the evening after a sail of over seventy miles.

The Army Medical School.

THERE are so many features of interest in the new regulations for the Army Medical School and they affect so many branches of the services that we publish them in full.

1. The following regulations governing the Army Medical School, Washington, D. C., are hereby announced:

2. The school shall be known as the Army Medical School. The object of the school is to train medical officers of the Army, candidates for the appointment of assistant surgeon in the Army, and medical officers of the militia, in such subjects as are appropriate to the duties which a medical officer of the Army is ordinarily called upon to perform.

3. The school shall consist of a president, such instructors, assistant instructors, student officers, student candidates and enlisted men as may be assigned to it for duty by orders of the War Department.

STUDENT OFFICERS AND CANDIDATES.

4. Medical officers of the Army who are stationed or are on leave at or near the city of Washington may, with the permission of the Surgeon General, attend the school.

5. Graduates of reputable medical schools who have qualified for appointment as assistant surgeon in the Army in so far as passing the preliminary examination required by the circular of information issued by the War Department, surgeon general's office, June 21, 1904,* shall attend the school. They shall be known as student candidates.

6. Such medical officers of the militia as may be hereinafter authorized may attend the course of instruction.

ATTENDANCE OF MEDICAL OFFICERS OF THE MILITIA AT THE ARMY MEDICAL SCHOOL.

7. By direction of the President, the following regulations are announced governing the attendance of medical officers of militia as students at the Army Medical School, as contemplated in section 16 of the act of Congress approved January 21, 1903.

8. A militia officer in order to be eligible for the course of instruction must not be less than twenty-two nor more than thirty-five years of age. He must be of sound health, good moral character and a citizen of the United States. He must have been a member of the organized militia at least one

*The terms of admission are quoted in full on page 198 of this number of the JOURNAL.

year and must have such preliminary educational qualifications as will enable him to participate profitably in the course of instruction.

9. Militia officers desiring to attend the school must be nominated to the secretary of war by the governors of their respective states, and the nomination must in each case be accompanied by an affidavit of the nominee stating his age, citizenship and length of service in the organized militia, and by a certificate from the colonel of his regiment or other satisfactory person as to his good moral character.

10. Such militia officers as have complied with the above and who may be selected by the secretary of war as candidates will be ordered to posts in the vicinity of their homes for preliminary examination. The physical examination shall first be conducted. If a candidate be found physically deficient a report in the case will be made at once to the military secretary by telegraph and no further examination shall be conducted without special authority from the chief of staff.

11. If the physical examination be satisfactory, the candidate shall then be examined in the following general educational subjects:

- (1) Anatomy and physiology.
- (2) Practice of medicine, including therapeutics.
- (3) Surgery.
- (4) Hygiene, general and military.

12. The examination shall be written, shall take place in the presence of a designated officer, and the questions shall be prepared by the staff of the school. At the close of this examination candidates shall be ordered to return to their homes. The examination papers shall be forwarded to the President, who, after having them marked by a board consisting of three officers, shall report to the military secretary, through the surgeon general, the names of those who have successfully passed. From the names thus submitted the selection of militia student officers will be made by the secretary of war.

13. Militia officers before their admission to the school, must sign an agreement to attend and pursue the course of study and to be bound by and conform to the rules and discipline imposed by its regulations.

14. The expense to the government on account of militia officers attending the school is limited strictly to travel allowances, commutation of quarters and subsistence. The travel allowances consist of the mileage or transportation allowed by law. Commutation of quarters will be the same as provided by law for officers of the corresponding grade in the Army. Militia officers cannot be furnished with quarters in kind. For subsistence each militia officer will be paid one dollar per day while in actual attendance at the school.

15. Each militia officer must provide himself, at his own expense, with the proper uniforms of his own state or territory, and with the required text books. The course will require the entire time of the student, so that no outside occupation during the school term will be practicable.

16. The course of instruction for militia officers shall be the same as that for student candidates, and they shall, upon graduation, be classified in the same manner.

17. A militia officer found deficient during the course in any subject may be conditioned by the president upon the recommendation of the academic staff, and continued at the school, with a view to making good his deficiency at the final examination. Without such recommendation he shall be reported to the military secretary, with a view to the withdrawal of the authority to attend the school. Any officer showing neglect of his studies or a disregard of orders shall, upon the recommendation of the president, be deprived of the privilege of further attendance at the school.

18. When a militia officer graduates from the school, the fact of his graduation shall be reported to the governor of his state or territory, who shall also be notified in regard to the positions in medical service of the militia for which the officer is especially qualified.

19. The names of the militia graduates shall be entered in the register at the War Department in accordance with section 23 of the act of Congress approved January 21, 1903, as qualified for such commands or duties as the staff of the school may recommend.

THE FACULTY.

20. A faculty, consisting of the president and the directors, shall arrange the program of instruction as to subjects, text-books, and allotment of time, prescribe the character and scope of examinations, and have final determination of all questions of proficiency of students: Provided, that no action of the board which changes the regulations of the school or of the course of instruction shall be final until approved by the War Department. The faculty shall meet at such times as the president may deem advisable.

THE PRESIDENT OF THE SCHOOL.

21. The general administration of the school is entrusted to its president. In the case of the absence of the president, the senior medical instructor present shall be acting president. The president shall make application to the surgeon general for such articles as may be required for the school, and shall report annually, on the first of July, its progress and needs.

THE SECRETARY.

22. The secretary of the school shall be selected by the president from the officers stationed at the school. He shall be the custodian of the records and the recorder of the faculty. He shall conduct the correspondence of the school and promulgate the orders of the president.

23. In case of loss or damage to any book, periodical, map or other property belonging to the school, the person responsible for such loss or damage shall make the same good by the payment of the actual cost of the article or the cost of repairs. This amount shall be assessed by the secretary of the school, whose action, when approved by the president, shall be final.

COURSE OF INSTRUCTION.

24. The course of instruction shall be both theoretical and practical and shall embrace a period of eight months, commencing on the first of October.

25. The course of instruction shall embrace the following subjects: 1. Duties of Medical officers; 2. Medical Department administration and customs of the Service; 3. Military hygiene; 4. Clinical microscopy; 5. Military surgery; 6. Tropical medicine; 7. Sanitary chemistry; 8. Hospital Corps drill; 9. Operative surgery; 10. Ophthalmology and optometry; 11. Military medicine; 12. X-Ray work; 13. Equitation.

EXAMINATIONS.

26. Subject to the following limitations, examinations shall be held under such rules as the school board may prescribe as soon as practicable after the final review in each subject.

27. In the case of a student officer or candidate not examined with his class owing to sickness or other cause, he shall be examined as soon as practicable after his return to duty. For this examination the topics and questions shall be similar to but not identical with those given in the general examination.

28. A satisfactory examination in any subject shall be understood to be the attainment of eighty per cent. of the maximum in both the examination paper and practical work in that subject.

GRADUATION.

29. Students who pass successfully through the entire course of instruction shall receive diplomas setting forth their proficiency.

30. The names of medical officers of the Army who receive certificates of graduation and the names of student candidates who afterwards receive commissions shall be borne on the Army register as graduates of the Army Medical School.

31. The student candidates standing highest in this examination will be selected for commission, in the order of their graduation, to fill existing vacancies in the Medical Department. Candidates who have received certificates of graduation, but who fail to receive commissions because of lack of vacancies in the Medical Department, will be preferred for selection for volunteer commissions and for employment as contract surgeons, and they shall be given an opportunity to take the qualifying examination with the next succeeding class.

DISCIPLINE.

32. Discipline shall be maintained by the rules prescribed for military posts and by the regulations of the school.

News of the Services.

Medical Inspector H. E. Ames, U.S.N., ordered from the Naval Academy to the *Maine* as fleet surgeon of the North Atlantic Fleet.

Dr. Roger Post Ames, U.S.A., ordered from Fort McIntosh to Fort DeSoto.

P. A. Surgeon J. W. Ames, P.H. & M.H.S., ordered to temporary duty at Cairo, Ill.

Colonel O. Wellington Archibald, former Surgeon General of North Dakota and for some years previously Acting Assistant Surgeon U.S. Army, fainted while taking a bath at his home in St. Paul, Minn., and was drowned July 28, 1905.

Assistant Surgeon F. A. Ashford, P.H. & M.H.S., ordered to the New York Immigration Depot.

Assistant Surgeon J. W. Backus, U.S.N., ordered from the *Southery* to the *Hancock*.

Captain David Baker, U.S.A., ordered from Fort Leavenworth to Fort Robinson.

P. A. Surgeon F. L. Benton, U.S.N., ordered to the New York Naval Hospital.

P. A. Surgeon T. D. Berry, P.H. & M.H.S., ordered for special temporary duty at New Orleans, La.

Surgeon T. A. Berryhill, U.S.N., detailed as instructor at the Naval Medical School.

Medical Inspector H. G. Beyer, U.S.N., appointed delegate to International Congress at Paris, France, and thence to the Asiatic Fleet as fleet surgeon.

Surgeon C. Biddle, U.S.N., ordered from duty as fleet surgeon of the Asiatic Fleet to the *Chicago* as fleet surgeon of the Pacific Squadron.

Lieutenant William N. Bispham, U.S.A., announced as temporarily in charge of the Chief Surgeon's Office, Department of Colorado.

P. A. Surgeon Rupert Blue, P.H. & M.H.S., ordered to Washington and New Orleans for special temporary duty.

Major William C. Borden, U.S.A., granted a month's leave.

Lieutenant James Bourke, U.S.A., ordered from Fort McHenry to temporary duty at Fort Howard and thence to the New York Medical Supply Depot.

Medical Director John C. Boyd, U.S.N., ordered to additional duty as President of the Naval Examining Boards at the Naval Medical School.

Surgeon W. C. Braisted, U.S.N., ordered from special duty in connection with the Russo-Japanese War to the Navy Department.

Lieutenant Colonel Louis Brechemin, U.S.A., detailed as member of a Medical Promotion Board at the Presidio.

Assistant Surgeon F. H. Brooks, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (Junior Grade), and ordered to the New York Naval Hospital.

Dr. Wilmont E. Brown, U.S.A., granted two months' leave.

Lieutenant Earl H. Bruns, U.S.A., ordered from the Yosemite National Park to the Philippines.

Assistant Surgeon J. T. Burkhalter, P.H. & M.H.S., granted a month's sick leave, and order revoked.

Dr. George R. Clayton, U.S.A., granted a month's leave, and ordered to accompany recruits from Columbus Barracks to San Francisco and thence to the Philippines.

Captain Jere B. Clayton, U.S.A., assigned to station at Fort Leavenworth.

P. A. Surgeon L. E. Cofer, P.H. & M.H.S., granted two months leave.

Assistant Surgeon H. W. Cole, U.S.N., ordered to the *Maine*.

Dr. Leighton R. Cornman, U.S.A., ordered from the Presidio General Hospital to Lowell, Mass., for annulment of contract.

P. A. Surgeon G. M. Corput, P.H. & M.H.S., relieved from duty at the New Orleans Marine Hospital, and ordered to New Orleans for special temporary duty.

Lieutenant George H. Crabtree, U.S.A., assigned to additional temporary duty as Attending Surgeon in New York City.

P. A. Surgeon D. H. Currie, P.H. & M.H.S., ordered to New Orleans for special temporary duty.

A. A. Surgeon V. Dabney, U.S.N., ordered from the *Culgoa* to the *Southery*.

Lieutenant W. T. Davidson, U.S.A., ordered before the Presidio Promotion Board, and from the Presidio General Hospital to the Presidio of Monterey for temporary duty.

Dr. Oscar F. Davis, U.S.A., ordered from Fort De Soto to Jefferson Barracks.

Assistant Surgeon P. T. Dessez, U.S.N., ordered to the *Charleston*.

Medical Inspector S. H. Dickson, U.S.N., ordered from the *Maine* and from duty with the North Atlantic Fleet home to await orders.

Surgeon A. W. Dunbar, U.S.N., ordered from the *Wyoming* home to await orders.

P. A. Surgeon B. H. Earle, P.H. & M.H.S., promoted from Assistant Surgeon from April 13, 1905.

Assistant Surgeon H. G. Ebert, P.H. & M.H.S., granted two months leave, and ordered to New Orleans for special temporary duty.

Major Peter R. Egan, U.S.A., assigned to duty at Fort Hamilton.

Surgeon Irwin Fairfax, P.H.&M.H.S., leave for one month revoked.

P. A. Surgeon Edward Francis, P.H.&M.H.S., promoted from Assistant Surgeon June 23, 1905, and ordered to Mobile, Ala., for special temporary duty.

Assistant Surgeon W. H. Frost, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

P. A. Surgeon F. M. Furlong, U.S.N., ordered to the Bureau of Medicine and Surgery.

Surgeon J. D. Gatewood, U.S.N., detailed as instructor at the Naval Medical School.

Dr. William R. S. George, U.S.A., ordered to Fort Monroe, Va.

Lieutenant Herbert C. Gibner, U.S.A., ordered from the Sequoia National Park to the Philippines.

P. A. Surgeon M. W. Glover, P.H.&M.H.S., promoted from Assistant Surgeon from April 13, 1905.

Captain G. C. M. Godfrey, U.S.A., ordered before the Washington Promotion Board, and from New York to Fort McPherson.

P. A. Surgeon J. Goldberger, P.H.&M.H.S., ordered to report to the Bureau, and to special temporary duty in Mississippi and Louisiana.

P. A. Surgeon J. B. Green, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

A. A. Surgeon F. Gruver, P.H.&M.H.S., granted a month's leave.

Surgeon G. M. Guiteras, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

Major Henry M. Hallock, U.S.A., promoted from Captain.

Lieutenant Paul S. Halloran, U.S.A., leave extended two months.

Lieutenant Jesse R. Harris, U.S.A., granted a month's leave.

Assistant Surgeon G. S. Hathaway, U.S.N., appointed with rank of Lieutenant (J.G.) from August 1, 1905.

Lieutenant Levy M. Hathaway, U.S.A., ordered from Fort Gibbon to Seattle, Wash. for further orders.

Lieutenant George P. Heard, U.S.A., ordered to the Presidio General Hospital

Assistant Surgeon W. E. G. High, U.S.N., ordered from San Francisco Naval Training Station home to await orders.

A. A. Surgeon S. B. Hunter, P.H.&M.H.S., granted a month's leave.

Assistant Surgeon B. F. Jenness, U.S.N., ordered from the Iowa home to await orders.

Dr. George H. Jones, U.S.A., granted three and a half month's leave from Fort Fremont.

Captain James M. Kennedy, U.S.A., ordered before the Presidio Promotion Board.

Dr. H. Newton Kierulff, U.S.A., ordered from the transport service to duty in the Philippines.

Lieutenant Henry S. Kiersted, U.S.A., ordered from the Presidio of Monterey to Fort St. Michael.

Major Louis A. La Garde, U.S.A., granted two months leave and ordered to Manila

P. A. Surgeon C. H. Lavinder, P.H.&M.H.S., ordered to assume command of the detention camp at Fontainebleau.

P. A. Surgeon R. E. Ledbetter, U.S.N., ordered from the *Detroit* to the Boston Naval Hospital.

Medical Inspector D. O. Lewis, U.S.N., ordered from duty as fleet surgeon of the Pacific Squadron home to await orders.

P. A. Surgeon J. D. Long, P.H.&M.H.S., promoted from Assistant Surgeon April 14, 1905.

P. A. Surgeon G. W. McCoy, P.H.&M.H.S., promoted from Assistant Surgeon June 27, 1905.

Assistant Surgeon F. H. McKeon, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

P. A. Surgeon John McMullen, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

Medical Director R. A. Marmion, U.S.N., relieved from the command of the Naval Medical School and ordered to the Naval Retiring Board, Washington.

Assistant Surgeon E. R. Marshall, U.S. N., appointed Assistant Surgeon with the rank of Lieutenant (Junior Grade) and ordered to the Washington Naval Hospital.

Assistant Surgeon H. A. May, U.S.N., ordered from the *Franklin* to the *Iowa*.

Surgeon F. W. Mead, P.H.&M.H.S., granted a month's leave.

A. A. Surgeon J. B. Mears, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (Junior Grade).

Captain Sidney J. Meyers, Louisville, Ky., formerly Acting Assistant Surgeon, U.S. Army, appointed Captain and Assistant Surgeon, 1st Infantry, K.S.G.

Lieutenant Colonel Edward B. Moseley, U.S.A., granted a month's leave.

Assistant Surgeon E. H. Mullan, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

Assistant Surgeon C. B. Munger, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (Junior Grade), and ordered to the Norfolk Naval Hospital.

P. A. Surgeon J. A. Murphy, U.S.N., ordered from the Naval Medical School to the *Des Moines*.

Lieutenant Kent Nelson, U.S.A., assigned to duty at Fort McHenry.

Lieutenant C. L. Nollau, Louisville, Ky., appointed Assistant Surgeon, 1st Infantry, K.S.G.

Assistant Surgeon E. T. Olsen, P.H.&M.H.S., ordered to Stapleton.

Lieutenant Fred W. Palmer, U.S.A., ordered from Jefferson Barracks to Fort Bayard.

P. A. Surgeon C. C. Pierce, P.H.&M.H.S., promoted from Assistant Surgeon from June 27, 1905.

Lieutenant Robert H. Pierson, U.S.A., ordered from Fort St. Michael to Fort Gibbon.

Major James Evelyn Pilcher, Editor of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS of the United States, was elected 1st Vice-President of the American Association of Medical Editors at its recent meeting in Portland, Oregon.

Lieutenant Ralph S. Porter, U.S.A., ordered from Fort Niobrara to the Philippines.

Captain William W. Quinton, U.S.A., assigned to temporary duty at the Presidio General Hospital and granted leave of absence until the arrival there of the 17th Infantry which he is to accompany to Fort McPherson, Ga., where he will take station.

Lieutenant Charles A. Ragan, U.S.A., ordered to the Hot Springs General Hospital and granted a month's leave.

Colonel W. J. R. Rainsford, C.E.I., R.A.M.C., Principal Medical Officer, at Bermuda, has been appointed delegate to represent the British Army Council at the Detroit meeting.

Captain I. W. Rand, U.S.A., granted a month's leave.

P. A. Surgeon T. F. Richardson, P.H.&M.H.S., ordered to temporary duty at Brunswick Quarantine, and to New Orleans for special temporary duty.

Lieutenant William Roberts, U.S.A., ordered from Fort Hamilton to Sea Girt in charge of Medical Department.

Lieutenant Colonel Alejandro Ross, Professor of Transport and Treatment of Wounded on the Battlefield at the Practical Medico-Military School of Mexico, Professor of Hygiene at the National Agricultural and Veterinary School, Chief of Detail in the Military Hospital, formerly surgeon in the Mexican Navy, has been detailed to represent Mexico at the Detroit meeting.

Assistant Surgeon W. C. Rucker, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

A. A. Surgeon W. L. Savage, P.H.&M.H.S., granted a month's leave.

Surgeon H. W. Sawtelle, P.H.&M.H.S., granted a month's leave.

Major Lionel S. Schmitt, has been placed on the retired list of the National Guard of California.

Assistant Surgeon F. E. Sellers, U.S.N., appointed with rank of Lieutenant (J. G.) from August 1, 1905, and ordered to the *Franklin*.

Colonel Nicholas Senn, I.N.G., is a passenger upon the Arctic steamer *Erik* sailing from Cape Sabine with coal and supplies for Peary.

Surgeon E. M. Shipp, U.S.N., ordered to the New York Naval Hospital.

Lieutenant William M. Smart, U.S.A., ordered to Fort Caswell.

Assistant Surgeon E. C. Smith, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

Major G. G. Spencer, M.B., F.R.C.S., has been appointed Professor of Surgery in the Royal Army Medical College, London, vice Surgeon General W. F. Stevenson, who has been placed on the retired list.

Surgeon L. W. Spratling, U.S.N., ordered to the New Orleans Naval Station.

Assistant Surgeon R. D. Spratt, P.H.&M.H.S., ordered to temporary duty at Gulf Quarantine Station.

P. A. Surgeon H. A. Stansfield, P.H.&M.H.S., ordered from the Canal Zone to New York.

Assistant Surgeon E. M. Steger, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

Major William Stephenson, U.S.A., detailed as member of a Medical Promotion Board at the Presidio.

A. A. Surgeon W. J. S. Stewart, P.H.&M.H.S., granted a month's leave.

Dr. Frank Suggs, U.S.A., ordered to Fort Mansfield at the expiration of his present sick leave.

Surgeon General S. Suzuki, I.J.N., has been detailed to represent the Japanese Navy at the Detroit meeting and will read two papers based upon his experiences during the Russo-Japanese War. Surgeon General Suzuki was Surgeon-in-Chief of Admiral Togo's combined fleets from the beginning of the war until after the battle with Rojestvensky's command.

Assistant Surgeon E. A. Sweet, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

Assistant Surgeon J. L. Taylor, U.S.N., ordered from the Pensacola Naval Hospital to the Naval Medical School.

Fleet Surgeon Lloyd Thomas, R.N., has been ordered to represent the Medical Department of the British Admiralty at the Detroit meeting of the Association of Military Surgeons.

Lieutenant Colonel George H. Torney, U.S.A., detailed as President of a Medical Promotion Board at the Presidio.

Dr. William H. Tukey, U.S.A., granted two months leave.

Dr. Harry H. Van Kirk, U.S.A., granted a month's leave.

Dr. Milton Vaughan, U.S.A., returned to Fort Douglass, Utah.

P. A. Surgeon B. S. Warren, P.H.&M.H.S., promoted from Assistant Surgeon June 25, 1905.

Dr. Clarence A. Warwick, U.S.A., granted four months leave.

Surgeon Eugene Wasdin, P.H.&M.H.S., ordered to Mobile, Ala., for temporary duty.

Dr. Victor E. Watkins, U.S.A., granted two month's leave and ordered to Washington, D. C. for annulment of contract.

P. A. Surgeon U. R. Webb, U.S.N., ordered from the Bureau of Medicine and Surgery to the Naval Academy.

A. A. Surgeon W. L. Weldon, P.H.&M.H.S., granted a month's leave.

Surgeon C. P. Wertenbaker, P.H.&M.H.S., relieved from duty at Habana, Cuba and ordered to special temporary duty at Tampa, Fla., Montgomery, Ala. and Atlanta, Ga.

Surgeon J. H. White, P.H.&M.H.S., ordered to New Orleans for special temporary duty.

Dr. J. S. White, U.S.A., ordered from Fort Harrison to Fort Snelling.

Medical Director John C. Wise, U.S.N., ordered from the Naval Retiring Board, Washington, to command the Naval Medical School.

Lieutenant William P. Woodall, U.S.A., ordered to the Presidio General Hospital.

Lieutenant F. T. Woodbury, U.S.A., ordered from Plattsburgh Barracks to Sea Girt and return.

Surgeon General Walter Wyman, P.H.&M.H.S., President of the Association of Military Surgeons of the United States, was elected first Vice-President of the American Medical Association at its recent meeting in Portland, Oreg.

Don Joaquin Yela will again represent Guatemala at the meeting of the Association of Military Surgeons this year.

P. A. Surgeon G. B. Young, P.H.&M.H.S., ordered for special temporary duty at Jackson, Miss.

Lieutenant John D. Yost, U.S.A., granted a month's leave.

BRITISH RED CROSS SOCIETY.—A new British Red Cross Society was organized at Buckingham Palace in July, Queen Alexandra presiding. It is expected that Sir Frederick Treves will be Chairman of the Executive Committee.

THE FORT SHERIDAN HOSPITAL is to have a handsome addition, for which \$19,000.00 has been appropriated, to be built of pressed brick and stone. It will contain two contagious wards with a capacity of thirty-six beds.

THE PRESIDIO GENERAL HOSPITAL is about to have a new two story building of concrete, iron and wood, to be used for chemical, bacteriological, electrical, photographic and pathological laboratories.

JAPANESE CASUALTIES IN THE NAVAL BATTLE OF THE JAPAN SEA.—It is interesting to note that in the battle between the fleets of Admirals Togo and Rojestvensky in the Japan Sea the Japanese suffered a loss of 9 officers killed and 52 wounded and 107 enlisted men killed and 523 wounded, making a total loss of 691 of their personnel.

HOSPITAL CORPS COMPANIES OF INSTRUCTION, OHIO NATIONAL GUARD.—The Ohio National Guard has four companies of instruction, located at Zanesville, Cincinnati, Toledo and Columbus respectively, and numbering about fifty members, each. The Columbus Company, composed of university, high school and medical students went into camp at Newark, Ohio, from July 15 to July 23. A camp was laid out along regulation lines and the week devoted to practical instruction.

THE RED CROSS AS A TRADE MARK.—A firm of manufacturers of surgical dressings is circulating a legal decision sustaining their exclusive right

to the Red Cross as a trade mark. No military or naval medical officer can regard such a decision without regret nor can it be understood how any court could justify itself in deciding that the insignia of a great official international organization like the Geneva Convention could for a moment be regarded as an exclusive trade mark pertaining to any manufacturers.

RUSSIAN PHYSICIANS ON JAPANESE HOSPITALS.—A protest from a group of Russian physicians to the Japanese Chief of Military Sanitation in Port Arthur is furnished by Colonel Havard to *American Medicine*. The protest claims that the Russians in Japanese hospitals are not treated with the care and decency, not to speak of skill and humanity, demanded by the terms of the Geneva Convention. The protest is a bitter arraignment of the Japanese conduct of captured hospitals and prisoners in the Laiao Tang Peninsula.

RUSSIAN PRISONERS IN JAPAN.—Official reports show that the Russian prisoners in Japan consist of 10 generals, 70 field officers, 884 other commissioned officers, 8,559 non-commissioned officers and 50,768 privates. —a total of 60,291 individuals. In addition to these there were captured during the battle with the Baltic fleet in the Japan Sea 259 officers, 114 warrant commissioned officers and 5,744 petty officers and men. The total number of wounded prisoners taken was 279, of whom 14 have died, 59 have recovered and 206 remain under treatment at the Sasebo or Maizuru Naval Hospitals.

EXAMINATION OF MAJORS R.A.M.C.—The special subject for 1907 for the examination of officers of the Royal Army Medical Corps for promotion to the rank of Lieutenant Colonel is specified by Army Orders as, (a) Military History of the More Important Campaigns: The Medical History of the South African War as described in the "Report on the Medical Arrangements in the South African War," by Surgeon General Sir W. D. Wilson. (b) A General Knowledge of the Army Medical Services of Other Countries: The Medical Organization of the Japanese Army as described in the "Handbook of Medical Organizations of Foreign Armies, 1902," or the Medical Organization of a Foreign Army selected by the candidate, described within similar limits.

MEDICAL SUPPLIES IN THE RUSSO-JAPANESE WAR.—Enormous purchases of medical supplies have been made by the Japanese government for the use of its forces in the field. At one time 50,000 large cases were shipped from Japan to the troops in Manchuria. Two million pills a day have been produced by the military medical laboratory in Tokyo. Every Japanese soldier is required to take a pill of beechwood creasote each day as a prophylactic against dysentery, a tin containing ninety pills labeled "Russian Expedition Pills" being issued to each soldier. At one time 100,000 pounds each of quinine, carbolic acid and corrosive sublimate were purchased in the western market and enormous amounts of gauze, hygroscopic cotton, adhesive plaster and other surgical materials have been secured. The purchases are made with care, every article being thoroughly inspected by experts in order to insure its being of a suitable quality.

Current Literature.

NOTES ON MILITARY HYGIENE AND FIRST AID TO WOUNDED, UNITED STATES NAVY.*

IN a very brief space Surgeon Stokes has given to the line of the Navy a lucid, comprehensive and comprehensible basis of care in health and in disability. The simplicity, definiteness and correctness of the instructions are noteworthy, and these chapters add enormously to the value of the naval drill book, "The Landing Force and Small-Arm Instructions, U. S. Navy, 1905." Particularly interesting and valuable are his instructions on the application of first aid dressings and the wounded person's care of himself. The section on snake bites is especially clear and rather fuller than is usual in first aid monographs. The line of the Navy is to be congratulated upon the possession of instructions so graphically stated as a portion of a regular drill book.

THE NEW UNITED STATES PHARMACOPŒIA.†

THE eighth decennial revision of the United States Pharmacopœia, authorized by the United States Pharmacopœial Convention, held in Washington in 1900, has appeared and takes effect as official from September 1, 1905. The book displays evidences of the most profound thoroughness and is entirely worthy of the confidence of the profession and public.

***Notes on First Aid to the Wounded.** By Surgeon C. F. STOKES, U.S.N. Being pages 35 to 62 of the Landing Force and Small-Arm Instructions, U.S. Navy.

Notes on Military Hygiene. By Surgeon C. F. STOKES, U.S.N. Being pages 63 to 74 of the Landing Force and Small-Arm Instructions, U.S. Navy. 16 mo; Government Printing Office, Washington, D. C., 1905.

†**The Pharmacopœia of the United States of America. Eighth Decennial Revision.** Revised by the Committee of Revision and Published by the Board of Trustees. 8vo: pp. 692 P. Blakiston's Son & Co., Agents, 1905.

Among the changes which have been made, it is especially desirable to note the modifications in strength of:—tincture of aconite,—reduced from thirty-five per cent to ten per cent; tincture of veratrum,—reduced from forty per cent to ten per cent; tincture of strophanthus,—increased from five per cent to ten per cent; changes made in order to conform to the standards adopted by the International Conference on Potent Remedies, held at Brussels in 1902, with a view to making the strength of potent remedies uniform in all parts of the world. It will be seen then that the doses of the tinctures of aconite and veratrum will be in future four times that formerly given and of strophanthus one-half, provided that the preparations, put up by the pharmacists, are in accordance with the new Pharmacopœia.

INTERNATIONAL CLINICS.*

THE Second Volume of the Fifteenth Series of the International Clinics quite surpasses the record hitherto made by this valuable serial. Among the papers presented is one upon the Therapeutic Indications of Kephir by Hayem, the X-Ray Treatment of Tinea Tonsurans by Sabouraud and Noiré, Injuries of the Prostate Gland by Lydston, and a number of other valuable contributions by foreign and home medical authorities.

THE FIFTH EDITION OF SCUDDER.†

A NEW edition of Scudder on the Treatment of Fractures has come to be an annual feature of medical publishing, a thoroughly remarkable record both upon the part of the publishers and the author,—the former on account of their enterprise in so rapidly disposing of successive printings and the latter because of the close attention to the progress of his branch of surgery evidenced in justification of various revisions. Fifty new illustrations illuminate the carefully revised text in the present edition and add much to the worth of the book.

**International Clinics*. Edited by A. O. J. KELLY, M.D. Fifteenth Series, Vol. II. 8vo: pp. 310, with illustrations. Philadelphia and London, J. B. Lippincott & Co., 1905.

†*The Treatment of Fractures*; With Notes on a Few Common Dislocations. By CHARLES L. SCUDDER, M.D. Fifth Edition: 8vo: pp. 563, with 739 illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

SOME OBSERVATIONS ON THE TREATMENT OF FRACTURES.

By CAPTAIN JAMES P. WARBASSE,
OF NEW YORK.

ASSISTANT SURGEON IN THE NATIONAL GUARD OF NEW YORK;
LATE ACTING ASSISTANT SURGEON IN THE
UNITED STATES ARMY.



OR some time, the rather old fashioned subject, the treatment of fractures, has been somewhat neglected and has given way to the newer and more fascinating branches of surgery. I beg to present for your consideration some observations on the treatment of fractures, with especial reference to the use of plaster-of-paris, in military surgery,—observations, which are based on experience, and which touch upon the salient points in the treatment of these injuries.

The first and important thing in the treatment of fractures is that the surgeon should have before his mind a picture of the conditions of the bone which he is treating. Nothing contributes more to a satisfactory treatment than a satisfactory diagnosis. To have a positive conception of just what he is treating will also contribute much to the peace of mind of the surgeon.

The simple and old methods of diagnosis are still of the most service. There is no short cut to the acquirement of skill. Practice and experience are still the best teachers. It is much to be deprecated that the younger practitioners are blunting their diagnostic senses by a too great dependence upon the x-ray. In most cases the x-ray should be used, not to make the diagnosis but to confirm the diagnosis. When this rule is followed, the surgeons who are being trained in our metropolitan hospitals will be better equipped for work when their services are required in places where the use of the x-ray is not to be had. This applies particularly in military surgery.

Attention is called here to the diagnostic importance of crepitus. The value of this sign is much overdrawn. Local pain and tenderness are signs to which too little value is given. There are many conditions, such as the interposition of clot or soft tissue, which interfere with crepitus; but tenderness is nearly always present; and in the long bones, pain at the fracture can be elicited by making pressure at points remote from the seat of injury.

The surgeon should bear in mind that he is dealing with a wound—a wound of bone; and just as in the case with wounds of soft parts, the wider apart the wound surfaces are separated and the more they are permitted to move the greater will be the injury to the blood and lymph vessels, and the more will be the exudate and swelling. Conversely, the sooner and the more accurately the wound surfaces are approximated and retained, the less will be the swelling, and the more perfect the healing.

There are certain obstacles which may intervene to prevent the easy and satisfactory reduction of a fracture. Muscular contraction and pain are the chief among these; and both are overcome by general anesthesia. The method of correcting displacement by tiring out contracted muscles by making continuous extension against their contractile force can not be recommended. Immediate and complete reduction is the thing. To apply continuous extension to the overriding fragments of a fracture of the femur, with the expectation that in a few hours the muscular resistance will be overcome, is encouraging a false hope. The sur-

geon should not rest until the fractured bone is in the position in which he wishes it to heal. The experience of the writer has shown that if a given weight does not correct the deformity in few minutes it never will. Delay in completing the reduction is adding to the infiltration of the muscles, and decreasing their elasticity.

Muscular resistance is often regarded as the obstacle to reduction when the trouble is really due to the interposition between the bone ends of bundles of muscle, clot, periosteal tissue, fascia, or loose fragments of bone. The writer has seen forty pounds extension applied to a fractured femur, and the overriding and displacement not perceptibly influenced because of the interposition of muscular tissue between the fragments. When a satisfactory reduction can not be effected because of these things, the best surgery demands the operative removal of the hindrance to reduction.

The employment of lead and opium and other fomentations has little or no place in the surgery of fractures. The best treatment for the swelling and pain is the correction of the deformity. If a fracture of a long bone with overlapping has been allowed to go uncorrected, the infiltration with exudate of the surrounding tissues so rapidly destroys their elasticity that reduction without operation may soon become impossible.

When a point of bone lies close to the skin, and threatens perforation, a compressing pad should not be placed over the threatening point, but over the bone a short distance away. The involvement of a joint by a fracture, or close proximity to tendon sheaths, adds another element of importance. If the joint is kept immobilized too long the plastic material becomes adherent to the opposite bone surface. The amount of this material is largely dependent upon the degree of traumatism, or, in other words, upon the degree of separation and mobility of the fragments. Motion of the joint immediately after the injury increases the amount of the exudate. The writer has recently operated upon a fracture of the upper end of the tibia, involving the knee joint, in which there was non-union because the joint had not been immobilized, and synovial fluid had constantly

seamless white cotton stocking, the leg of a pair of drawers with a sock for the foot, tubular cotton jersey cloth, or a smoothly applied flannel bandage without reverses. The most important thing of all is that the first layers of the bandage should be perfectly flat and free from creases or wrinkles. A four inch plaster bandage should be applied first about the region of the fracture. Too much emphasis cannot be given to the necessity of making this bandage lie smoothly and flat, with neither edge of the bandage tighter than the other. Reverses should not be made, but where it is desired to change the direction of the bandage, it should be cut in two and then started in the desired direction. By following this practice throughout the bandage, a dressing free from folds is secured. A four inch bandage should be carried over the knee to the middle of the thigh. A narrower bandage is next used. This envelopes the ankle and the foot.

Such a dressing may be materially strengthened and a smaller amount of plaster used by incorporating a few thin longitudinal strips of wood shavings or strips of strong paper. Some of the turns of bandage should make long spirals or be placed on longitudinally to give strength, and minimize the amount of material required.

The treatment of compound fractures in such a dressing is most satisfactory. A square opening is cut through the stocking skin-covering, a little larger than the wound. The wound is then thoroughly dried and covered with a few flat squares of dry gauze, but slightly larger than the wound. The plaster cast is then applied just as in a simple fracture, the dressing being so small as not to make a bulge in the cast. While the plaster is still damp, before it has completely hardened, a square opening is cut out of the plaster, a little larger than the squares of gauze covering the wound. For accuracy, the positions of the four corners of the gauze may be determined by measurements from fixed points. A sharp scalpel is just as important for this operation as it is for a laparotomy; to accept a poor knife is to invite a poor job. The plaster square is removed, the cut edges of the window smoothed and a larger and more permanent dressing applied to the wound. This opening should be made large enough so that the wound moisture through the dressing does not reach

the cast. In order to more surely protect the plaster case from wound moisture, a square piece of oiled muslin or other waterproof material may be spread over the first temporary dressing, under the cast, cut somewhat larger than the gauze squares, and when this is cut down upon it is incised in such a way that it may be turned back over the edges of the window. Another method of rendering the edges moisture-proof is to paint them with shellac, varnish or ordinary oil paint, after the cast has become thoroughly dry. The whole of the cast, if necessary, may be rendered waterproof in this way.

When the wound is large or when there are more than one wound requiring that much of the cast must be sacrificed, it may be strengthened by incorporating strips of wood or metal.

The important thing is that the inside of the cast shall be smooth and free from irregularities, and that its pressure shall be perfectly even throughout. Such a plaster cast may be cut down on either side while it is still wet, and thus divided into an anterior half and a posterior half. The first may be lifted off at any time for purposes of inspection. The two halves may be held together by a few turns of muslin bandage. It is well to cut out a narrow strip of the cast at the two edges of division in order that the cast may fit more snugly, and that it may better accommodate itself to the natural shrinking of the limb, which must needs follow as a result of disuse.

A properly applied plaster cast gives a sense of comfort and relief to the leg. If there is persistent pain, the surgeon should not hope that it will subside, but should assume that the reposition of the fragments has not been perfectly effected or that the splint has not been properly applied, and he should govern himself accordingly. A cast that is not comfortable should not be left on.

The methods which we now have at our command for accurately determining the condition of broken bones, and the application of modern surgical operative methods to the correction of displacements and the relief of complications, places modern surgery in a position to be satisfied with nothing but good results in the treatment of fractures.

THE RELATIONS OF THE MEDICAL DEPARTMENT TO THE HEALTH OF ARMIES.*

BY LIEUTENANT COLONEL HAROLD GEORGE HATHAWAY.

ROYAL ARMY MEDICAL CORPS.



THE theme for this literary composition is of such extent that to deal with it in an exhaustive manner would require most of the paragraphs of the Medical Regulations of an Army to be discussed, but this cannot be required on account of the length limit fixed. A short sketch is therefore submitted in which those subjects are treated in some detail which have come under the experience of the author, who hopes that the opinions he advances will be found practicable and useful, and in some cases original.

The Medical Department of an army is held responsible to a nation for the health of its troops, at all times, under circumstances of peace and war and wherever they may be located. This is a very onerous charge: it is therefore incumbent on a Government to frame such regulations as shall insure the supply of a suitable personnel whose value must be enhanced by such opportunities of study and research as shall keep them abreast of the knowledge useful to them, in their professional duties.

The officers of the Department are charged with the duty of recommending to General and other Officers Commanding, any precautionary or remedial measures relating to barracks, encampments, garrisons, stations, hospitals, transports, diet, dress, drills, and duties, which may in their opinion, conduce to the preservation of the health of the troops, and to the mitigation or prevention of disease, in the army. If it is considered advisable to provide medical officers for the army, whose advice and recommendations in these matters are of value and worthy of consideration,

*Second Prize Enno Sander Essay, 1904.

it is equally necessary that their counsel should receive the attention it deserves.

Reformation of armies is constantly taking place; the object of the changes proposed may sometimes be to improve the fighting machine, based on experiences of some recent campaign, or the Army Estimates may receive the attention of Government with a view to curtail expenditure, and in the countless changes that take place, the Medical Department receives its full share. It has even been suggested to abolish the Army Medical Officer altogether, trusting to private practitioners to treat the sick in peace time and to appeal to the Hospitals in war time to supply surgeons to accompany troops on active service. The argument supposed to frame this very extraordinary proposition being that soldiers are physically fit on entering for a short period of service; if seriously ill, they could be accommodated in civil hospitals, and the ordinary trivial cases of sickness could be treated by local practitioners. I merely mention this suggestion to show how extremely ignorant the nation at large, and even the Army itself, is of the Relations of the Medical Department to the Army. It is only after a prolonged campaign or after an extensive outbreak of some preventable disease that reformation is more or less seriously taken in hand to put the great sanitary usefulness of the Medical Department on a more satisfactory basis.

There are glorious pages in the records of the Medical Departments of most armies, and conduct worthy of great commendation has often passed unnoticed; but it is not in the treatment of ordinary diseases that the laurels for the Army Surgeon are earned, it is in the countless instances of total abnegation of self, and disregard of personal danger on the battlefield, or during epidemics of such diseases as cholera and yellow fever. The Army Surgeon has experience second to none in certain diseases and who shall say that he is not now in different parts of the world ably investigating and adding to a knowledge of tropical diseases. It is only politic for the Government to help him in his research; and to insure a periodic return to the study of the general diseases that he rarely sees abroad, on each return from foreign service.

The value of sanitation in the Army cannot be overestimated: yet its necessity is only very gradually becoming understood outside the medical profession. Every member of the Medical Department of an Army must have a sound knowledge of hygiene, the more it is fostered the more valuable he becomes to the Army, but his work is depreciated in value, or more often rendered quite useless by his recommendations coming before men entirely ignorant of that which he inculcates: it is therefore imperative that the Army at large both officers and men should have at least a rudimentary knowledge of sanitation.

An expert in hygiene should be on the staff of every Command; he conducts the more minute investigations, and to him all questions of sanitation should be referred, and his decision should finally dispose of matters, where a moderate expenditure of public money is called for to remedy some sanitary defect in the Command.

It is, of course, absolutely necessary to keep up a medical service for duty abroad in peace time, so it is only reasonable that the members of it should be allowed for a certain time to do duty at home, and during this period they improve their technical education. Every day in peace or war, the medical officer collects experience that all helps to make a valuable public servant. Allusion has already been made to knowledge gained in diseases that are prevalent where soldiers serve at home and abroad. There is even another very strong reason why every effort should be made to enhance the efficiency of the Army medical officer rather than to replace him by contract service,—it is this: A large Army has a large medical department and there is a vast amount of administration necessary both in peace and war, so that the senior officers have to be men of resource if their administration is to be successful; the necessary qualities do not arise intuitively although of course some men have more power in this direction than others, they are rather the outcome of experience gained in each successive grade. It would sorely puzzle the best Hospital Surgeon if he were to be put down at the base of operations, with even a Field Hospital to Command.

The duties of Recruiting demand no special skill from a doc-

tor but they are onerous and important, so the examinations of recruits must be thorough; they take time, so it is very doubtful if any qualified practitioner would take less pay for his services than is awarded to the Army Medical Officer.

The men of the corps who help to nurse the sick have much of the credit of the Medical Department in their hands, they must be steady intelligent and trustworthy men, of a better class than the ordinary soldier, they are entitled to a good rate of pay.

The actual nursing of men seriously ill in peace time should, whenever possible, be carried out by female nurses, and whenever practicable they should proceed to the base of operations to nurse the sick and wounded in the General Hospitals. There is plenty of work for the Army Nursing Sisters, and in most armies their numbers might well be greatly increased.

The Discipline of the Corps and men under treatment should undoubtedly be with officers of the Medical Department. In peace time it is necessary that regulations that are conducive to the welfare of soldiers under treatment should be strictly enforced, and the discipline necessary should be left in the hands of those who best know the value of it, with regard to rapid return to duty of those incapacitated. It is quite for the welfare of the soldier that while he is in hospital he is completely under the control of the medical officer, at the same time the duties of medical personnel are more efficiently carried out if those who issue orders and direct work are furnished with authority to punish neglect of duty, or inefficiency, and having placed authority in the hands of a medical officer, a clearly defined rank must support it, and a distinctive uniform bearing the badges of this rank. On active service whilst others are fighting, the medical officer is superintending the disposal of the sick and wounded, and this work can only be carried on with the necessary despatch, if medical officers have the proper authority to enforce their orders.

Uniform of medical units that have to approach the fighting line should be very distinctive. An example should show this necessity. Infantry are extended under fire at two thousand yards distance from modern rifles, all available cover has

been taken and the force for a time stationary, some casualties have been caused, and they require succour; to apply first aid, the medical officer and his assistants must proceed to the wounded whilst all troops are taking cover, and a small brassard on the arm cannot be distinguished at the range; it would therefore be for the good of the wounded and for the protection of those whose duty is to succour them, if the latter were clothed in long red, or white and red coats, or a large Geneva Cross flag was carried about the field on such occasions. An ordinary simple bullet wound can be dressed by nearest comrade, both the wounded man and he who succours him being often able to remain protected by cover, but there are a proportion of wounds that call for the immediate attention of the surgeon, and for attendance on such cases, under a hot fire, he requires a far more conspicuous mark than the arm brassard at present in use. In every war one hears of medical officers and stretcher parties being fired upon, when affording succour to the wounded; of course with very few exceptions this is absolutely unintentional, and generally results from distance preventing the possibility of distinguishing one man from another. On the other hand it is quite by chance as a rule that the presence of ambulances in any way protects a force; for example the fire may have subsided, whilst an ambulance is passing along, a battery trots past the ambulance without in any way intending to use it as a protection; in the hot fire that greets it the ambulance also suffers, some of the wounded being killed, but nobody could blame the enemy. There is no object whatever in removing the wounded quickly under fire, unless the force is retiring rapidly before a savage foe who will not respect the wounded. Supposing a force of infantry are extended under such cover as can be procured in an open plain whilst the firing lasts. All the wounded require is first aid, field dressing and improvement of cover, they may be protected by, so that they shall not be hit again, and an hypodermic injection of morphia if in pain.

PEACE.

At Home.—The first consideration in time of peace is to have everything ready for war. There must be a sufficient organiza-

tion, with abundant equipment and supplies, and as much of the value of an army depends on the quality of its soldiers the Medical Department must bear its share of the burden in the task imposed of producing a highly trained fighting machine; the responsibility commences in the selection of the raw material, continues in watching over his physical development, and preservation of his health in the army, and only terminates when the soldier ceases to serve.

Discipline in the army is very dependent on the Medical Department, for otherwise just punishment or irksome duties would often be evaded on the plea of some trivial disease; at the same time serious illness may be found that would render severe punishment, or even an ordinary class at Gymnasium dangerous to life; great importance therefore attaches to the medical examination of prisoners, or men about to go through gymnastic training.

In a short essay it is impossible and unnecessary to discuss all the detail of duties of the Medical Department at home during peace time, they form a routine of labours very important but unproductive of advance beyond the stages expected in civil life.

The soldier is passed physically fit on admission to service and ordinary hygienic precautions should in his own country keep him in health. Moreover, physical exercises continued with suitable diet, proper housing and clothing, should greatly improve his general condition. The physical exercises are fixed on a scale proportionate to age and development of soldier; it is the duty of the medical officer to see that the conditions of health are maintained throughout training. The diet scale is arrived at by scientific calculations of requirements, the medical officer must continually assure himself that the supply is sufficient and of the best quality.

Suitable barracks built on hygienic principles being provided, medical officers must look to the sanitary conditions being satisfactory, living rooms always clean, ventilated and warmed as necessary. This applies also to subsidiary buildings, cook-houses, urinals, latrines, guard houses and cells.

The personal cleanliness of the soldier and his clothes is a very important item.

Attention has of late years been directed to the teeth of the soldier, it has been found that men of his class almost always suffer from decay of teeth. The inconvenience experienced by this condition is comparatively trivial at home, but when the soldier goes on active service the loss of a certain number of teeth may quickly be the cause for invaliding, for he cannot bite the staple article of the ration, the biscuit; and the food of tropical and semi-tropical countries being of a far less nourishing nature when un-masticated and therefore incompletely digested, ceases to adequately support a man; the climate further enervates, and a condition of lower vitality arises, which welcomes any of the diseases peculiar to the climate.

A soldier should be made to clean his teeth and dentists should keep them in proper condition.

I have myself compared the condition of soldiers' teeth with those of men of the same class working in a dockyard and find that making allowance for age, the number of teeth deficient or decayed are much the same; few men of this class of life clean their teeth, and very few have completely sound teeth.

Every recruit must be vaccinated against small-pox, and yearly inspections must be made of all vaccination marks, and if they are not quite satisfactory, vaccination must be carried out.

The duties of medical officers are of course very much qualified by circumstances of service of troops, voluntary or forced or according to the length of service required. If the service is voluntary, the recruit may attempt to conceal some disability in the hope of passing as physically fit. If the service is compulsory the recruit may profess some disorder that does not really exist so as to avoid service. If the term with the colors is a short one there will be little inducement for the soldier to attempt to simulate disease with a view of invaliding, whilst if he has enlisted for a long period, and he becomes discontented with his lot, or more congenial employment offers, he may feign disease which will require all the acumen of a medical officer to detect, the commonest deception being various forms of mania; and the soldier who has made up his mind to go, becomes a nuisance to his officers and his comrades, so that they, gladly, assist him in his

efforts to deceive by furnishing reports of his strange conduct, and the medical officer unwilling to stake his reputation, compiles the necessary invaliding documents, although he may have serious doubts about the case.

In an army where quality is the first consideration, there should be no difficulty in discharging a man from the service simply because he wishes to leave, or his officers do not want him, there should be no necessity for deception or fraud: if the pay and prospects of serving were good, there would be plenty of better men to take his place. It brings discredit on the Medical Department, and the army, if men can evade duty, punishment or even continuation of service by baffling medical officers.

To medical officers at home fall the very responsible duties of training their own men, who are to assist them in their endeavors of doing the best possible for the sick and wounded of the army. In no body of men, is a high sense of duty, more required. In a well paid army where quality is more considered than quantity, and where a liberal supply of recruits are always forthcoming, and a good class of man is enlisted, the profession of arms is more inducement to serve than is the pay however good, and on active service, the combat stimulates all who are worthy of their country's consideration to do their best; but the men who tend the wounded on the battlefield have to take punishment without any chance of retaliating, so they are deprived of the legitimate excitement of campaigning; and at the same time they have to display skill and care at their work under most distracting circumstances, so that their training must be very thorough; their officers should encourage interest in their work, and as their recruiting is in the hands of their own officers, they must be careful that only intelligent men who are likely to do credit to the Medical Department are enlisted, and afterwards they should constantly impress on them how much the credit of all concerned is in their hands. Recruits for the Medical Department are expected to be able to read and write, they should be carefully instructed in nursing by the lady nurses, under whom they will tend the sick in the Hospitals at home; the soldier is trained to endure hardships, so he is not usually an exacting patient, for

which reason alone he deserves the greatest kindness and consideration, and all should endeavor by kind and considerate treatment to earn his gratitude and respect. Any established complaint of neglect to a patient should be treated with the utmost severity, and the offender recognized by his comrades, officers and men alike, as one who has brought discredit on them. At the same time all must be firmly protected against false charges and trivial complaints. With a proper amount of esprit de corps the medical service should hold a very enviable position in the army.

PEACE TIME (CONTINUED).

Abroad.—All soldiers undergo a physical examination to test their fitness to serve abroad. Much care must be taken to insure that only the physically fit are permitted to embark, else the State will assuredly be put to the extra expense of their return journey, before they have completed their tour of foreign service. When troops are about to embark it is necessary that the ship that is to transport them should be thoroughly examined, all the sanitary arrangements must receive attention, there must be no overcrowding, hospital accommodation must be sufficient, and there must be means of isolating infectious cases. During the voyage there must be daily exercise on deck, directly weather permits men should discard foot covering, they should be made to bathe daily if possible; as the tropics are approached there must be good protection from the sun, and solar helmets worn when necessary. The food must be sufficiently varied, if green vegetables are not procurable jam and lime juice must be issued to prevent scurvy. The troops are examined for venereal disease with the object of curing all cases discovered during the voyage, and to prevent spread of disease to the stations to which the troops may proceed.

If the voyage is to a country in which enteric fever is constantly present it is a wise precaution to inoculate against the disease before the end of the voyage, so that young soldiers may be protected; when they first land and journey up country to their stations during the first few weeks in a new country they are peculiarly susceptible to the disease, and its germs may be present in the several rest camps used.

The troops are disembarked and usually proceed by trains to their destination generally traveling at night time at a slow pace, and as the train accommodation does not permit of rest being taken during the journey, frequent halts by day are necessary, at least every forty-eight hours the troops being accommodated in rest camps; it is necessary that the camp and its surroundings should be in a satisfactory sanitary condition, the food supply good, and the drinking water pure, there should be a liberal supply of mineral waters available both on the train and in the camps; all native vendors of fruit, etc. should sell under a license and have their supplies carefully examined. The young soldiers being quite fresh to the country should be specially warned and forbidden to eat and drink that which is very likely to do them harm. All the sanitary precautions necessary to keep the soldier in health at home are required abroad, but in addition there are prophylactic measures necessary to insure his health against diseases that never, or rarely, threaten him in temperate climates.

It is impossible and unnecessary in a short essay to discuss all the diseases peculiar to foreign countries and the measures being taken to prevent or mitigate their evils; in some diseases these measures meet with marked success, in others little difference can at present be noticed, but in peace time it is of course possible to do much, which the conditions of active service render impossible, and sanitary science has arrived at a stage in which the proper preventive measures can be recommended and if the necessary amount of money is forthcoming the disease is stamped out in a garrison. Some of the diseases which were such scourges in the past are becoming comparatively rare. A good water supply, wholesome food, wise precautions as to isolation have brought about this satisfactory result. Cholera, yellow fever and dysentery will probably soon be diseases of the past in peace time.

Enteric and malarial fevers form a very formidable obstruction to good health of troops on a large number of foreign stations; much has been learned of these diseases of late years and a large amount of hard work is required of the Medical Departments to relieve all the armies of the world of these diseases which

are formidable in peace time, and often appallingly severe on a campaign of any length. At home there is usually no difficulty in tracing the few cases of enteric fever that occur to an infected milk or water supply; but abroad the conditions of life are so different that it is certain there are other causes for the spread of the disease, such as flies and dust, the methods of disposal of excreta being favorable to both to transmit the germs of the disease. All evidence goes to show that enteric fever may be contracted from a case before the disease has become manifest, and for many months after convalescence has been established, the microbe being transmitted by bowel excreta and urine. The young and vigorous are the most susceptible to the disease especially on fresh arrival in the country; the natives of the East do not suffer severely from enteric fever; post mortem examination of the bodies of Asiatics, who do not eat meat, never show the typical lesion of the Peyers patches. When there are several cases of enteric fever in a garrison, there are always a large number of mild cases of fever, that show a continuous temperature for a few days; they cannot be classed as malarial, and are of the abortive enteric type. Young children in every country probably from the little developed condition of the intestinal glands, suffer little from an attack of enteric fever. It is probable that the disease is widely distributed amongst both white and black races in the East attacking the former usually during the first few years' residence in the country before the system has had time to become immune, and the natives in early childhood, when the typical symptoms of the disease are not developed. In India it is quite exceptional for the middle aged to be attacked, all non-commissioned officers and men arrive in the country quite young, and this is also usually the case with officers. In South Africa this distinction was not so noticeable but large numbers of cases of enteric fever may have rendered the poison more virulent from the concentrated focus of disease.

In taking precautions for the prevention of enteric fever it must of course be assured that the supplies of water and milk are pure, if there is doubt about either, the best plan is to thoroughly boil, taking great care that in the cooling process there is no chance for contamination.

In barracks and camps the latrines and urinals are usually far too near to the cook-houses and living rooms. It is essential that cleanliness should be present in cook-houses and their surroundings; no refuse buckets should stand outside to attract flies, they should be kept inside the scullery; the doors should be made of gauze and should fit accurately, they should close automatically, two doors opening outwards form better protection from flies than one door. Windows should be protected by gauze. All clothes used in kitchen and utensils should be kept clean. It is more important to keep latrines and urinals clean for it is from these subsidiary buildings that the disease spreads. Whatever means for disposal of excreta are used, measures must be taken to prevent flies resting in the receptacles, the pans should be kept clean, and a duplicate number of them should insure their being changed directly after being used, the lids should close automatically when not in use, and the pans should be enclosed in a gauze flyproof box like a meat safe with door at back to remove pan, the lids of all filth receptacles into which the pans are emptied should be made to fit properly and should be kept closed, and no filth should be allowed to fall outside receptacles or carts; the less exposure of the filth the better in barracks, in some stations a trolley is used to carry receptacles out to the filth pits, where they are cleansed and returned to barracks.

Enteric fever can be stopped by closing for a time the latrine used by a case of enteric fever before proceeding to hospital. No doubt the latrine usually forms the chief focus of disease; dust in its vicinity may convey the disease, but probably the fly is the chief cause of the spread of the disease, and too much attention cannot be bestowed on the doings of the common fly where enteric fever is rife. A pest of flies infests a latrine where the sanitary arrangements are not quite perfect; at meal time they shift over to the living rooms, returning to the latrines when meals are over; if the feet of a fly permit it to stand on a ceiling supporting its weight, there is no doubt that if it stands on excrement containing the microbe of enteric fever, and then immediately afterwards alights on food that has left the cook-house, the disease can be readily carried in this manner. I con-

sider that it is far more important to make the latrines and urinals sanitary than to protect the food in the cook-houses, though of course every precaution should be taken. Many systems for the disposal of excreta are excellent if thoroughly carried out, but in the hands of the soldier they fail entirely from the want of intelligent interest and knowledge; the best plan is to burn all excrement in barracks with as little delay as possible, and it would be a great improvement if cook-houses were only separated from dining rooms by a window through which meals should be served. Mounted corps are more troubled by flies than Infantry because the horses' bedding at some seasons of the year forms an extensive breeding place where flies are hatched out.

One of the commonest methods of disposal of filth in India is by the Allahabad system of trenching: in this method three inches of earth is removed and six inches of earth loosened, the filth saturates this soil, and the three inches of dry earth is replaced on the top, and the sun is expected in conjunction with the soil to produce a very sanitary condition in a very short time, excellent crops being grown over the ground so used; there is no doubt that night soil pits form an extensive breeding place for flies. The third day of burial of filth can always be told by presence of large numbers of small birds on the ground, and on turning up the soil it will be found that they have been attracted by innumerable maggots, two days later the flies will be seen to be hatching out in large quantities. I have tried several experiments with object of destruction of larvae in filth; large quantities of salt in receptacles has not prevented maggots hatching out after burial, but keeping the receptacle closed up for twenty-four hours before burial prevented larvae hatching, apparently from total deprivation of oxygen. Without a doubt it will be before long recognized that the chief cause of the spread of enteric fever in armies abroad and on active service is the common fly. I have kept a record of the relative prevalence of the disease, and that of flies, and find that they are entirely coincident. Great care is required in hospitals where enteric fever cases are treated; to prevent the spread of the disease the vitality of its germs must be destroyed as quickly as possible, linen used must be soak-

ed in disinfectant before washing, all feeding cups, crockery and furniture, and in fact, every thing used by cases suffering from this disease, must be kept separate in wards used only by enteric fever cases, and in the period of convalescence isolation is also necessary. Skill is required to keep a force free from this affliction, but when once the disease has appeared all the resources of sanitary science are required to stamp it out. Success in this direction is dependent on the cooperation of many who have little understanding of sanitary matters, therefore the results will never be entirely satisfactory until the knowledge of hygiene is more widely cultivated in the army. A soldier is expected to preserve his weapons, and attend to the welfare of his horse, if he belongs to the mounted branches of the service. He should be taught the necessity of protecting his own body from disease and any disregard of sanitary regulations should be severely punished. Every officer should be expected to have a sufficient knowledge of hygiene to understand the value of recommendations made by medical officers and to insure them being carried out with intelligence. This constitutes one of the most important connections between the Medical Department and the army, and at no time is the want of universal sanitary knowledge in all ranks of the army more felt than when a force is face to face with the insidious inroads of enteric fever.

It is practically impossible to exclude the fly, from either living rooms, cook-houses, or latrines, but its presence in either though unpleasant, is harmless if its contact with excrement is made impossible, and the strictest precautions should be taken in this direction to stamp out enteric fever.

Malaria though of secondary importance with regard to the actual numbers that die from the disease is a common enemy of the soldier abroad, causing many admissions to hospital, the same individual being often attacked again and again, and the debility consequent on malaria permits the serious inroads of other diseases that would be of little consequence were the subject of them not already prostrated.

This disease, in some countries, is the most frequent cause of inefficiency.

We thoroughly understand the cause of malaria, and the measures necessary to prevent the disease, and facts have proved that it is quite preventable.

In peace time the simplest plan would be to locate troops only in districts where mosquitoes cannot live and generate but unfortunately troops must garrison certain places whether unhealthy or not. With sufficient amount of money for the purpose, there are measures to be adopted to prevent malaria, which are likely to prevent or much reduce the occurrence of disease, such as surface drainage, cleaning water courses of vegetation, filling up holes where water could stagnate or if this is impracticable to destroy the larva of the mosquito by kerosene oil. In the building of houses and walls, and for the repair of roads earth is continually dug up, and the resulting hole is usually left and forms a breeding place for mosquitoes after wet weather. The ground surrounding all dwelling places should be kept clean without depressions that could hold water, and with a smooth surface drainage to the water channels. The value of quinine as a prophylactic has for many years been recognized but only quite recently the necessity of stamping out fever in all the men, women and children of natives residing near to where troops are located for the benefit of the whole community has been acknowledged; for the same reason patients in hospital suffering from malaria should be isolated, and thoroughly protected from mosquitoes by gauze windows and doors and mosquito curtains, lest the anopheles should draw the virus from these patients to infect others. Mosquito curtains, punkahs briskly pulled, and prophylactic doses of quinine, must protect those who manifest no signs of the disease during the months that mosquitoes are active.

It is a very common thing for any body to suffer from malarial fever after a railway journey in India; this is easily explained, the permanent way of the railway is often built on a bank, which when the line passes through water logged districts or where irrigation is carried out, stops the flow in neighbourhood of the railway, and allows water to stagnate and form suitable breeding places for mosquitoes, this condition is also made worse by earth being dug up on each side of the line to make or repair the bank

on which lies the permanent way; the natives of the district suffer from malaria, and the infected mosquitoes have ready access to travelers the windows of the carriages being usually open at night, and mosquito curtains being rarely used in the train. On some lines the doors and windows of railway carriages are now being fitted with wire gauze, which is a very useful precaution.

Venereal disease is always present in all armies at home and abroad when not engaged in active service. It is impossible to check the natural passions of healthy men, who unfortunately practice no discretion when satisfying their brute lusts, and have often further clouded their intellect at the time by alcoholic excess; at home, the results of such bouts are not usually severe, unless specific disease is contracted, but in the East, the mildest form of venereal disease incapacitates a soldier for some time, and degenerates his system to such a degree that other more serious diseases are readily attracted, so that venereal disease is the primary cause of much invaliding. A great deal may be done to mitigate the evil although state recognition of vice is not permissible. If cleanly women may not be provided by the State, those diseased can be banished from vicinity of barracks. Good advice from officers may inculcate self-respect, and cleanly habits in their men, that may reduce numbers that become diseased, and hospital stoppages with inability to receive higher rates of pay, or promotion may have deterrent effects. The professional prostitutes do not convey disease so much as the women who hang about the vicinity of barracks, and solicit soldiers. Military police should prevent this evil; the soldiers themselves should be specially warned against this very probable method of contracting disease, and if venereal comes to them in this manner they should be treated as having wilfully rendered themselves incapacitated for duty. Arrangements can be made regimentally and unofficially to have washing places for soldiers near to where they resort for intercourse with prostitutes, and the use of some potas permang. solution or zinci sulph. directly afterwards, will be much more valuable to prevent venereal disease than if they waited until their return to barracks to wash. All soldiers who contract syphilis should be treated with the intramuscular injection of mercury;

there is no better treatment for this disease, and it is particularly suited to military life avoiding the necessity of treatment in hospital for a long time, and forming a very sufficient remedy to prevent secondary and tertiary symptoms. In a community that is under control like the army, and where treatment can without difficulty follow a man wherever he goes, there should be a complete system of antisyphilitic treatment for every man affected, so that he should never be invalided, or pass into civil life, without a complete course of mercury, based on requirements shown in his medical history sheet which follows him wherever he goes, whilst he remains in the army.

Although a soldier usually enlists for such a short term of service that the severe symptoms of syphilis are not manifested, whilst he is in the army, and he has only himself to blame for contracting the disease still it is to the credit of the army to endeavour to completely cure him of the disease before he ceases to serve, and the matter has a still more important and wide spread aspect: the soldier should leave the service a typical stock producer of his class, whom physical drill, and wholesome living, has much improved: so every man leaving the army uncured of syphilis tends toward the degeneration of his race, instead of improving it, as we might reasonably expect.

WAR.

On hostilities commencing, a medical examination is made of every body proceeding to the front. Officers and men must be thoroughly fit to perform their duties on active service, and undergo the hardships incidental to campaigning. The country must be spared the expense caused by invaliding and replacing soldiers suffering from disabilities, that can be discovered before they leave their country. Active service seasons and hardens those who enter upon it physically fit, whilst the constitutionally weak degenerate still further from exposure and are a prey to any disease, that is the offspring of the deficient sanitation that often unavoidably attends an army in the field. A man who is feeling ill has no stomach for the fight. Quality is of more importance than quantity amongst men on active service. There are several disabilities that should obviously prevent a man

being passed fit for active service; there must be no disorder of the heart in any form, the lungs must act freely and afford no evidence of disease even of old standing.

The presence of hernia unless a radical cure has been performed satisfactorily is a defect especially to a mounted man. One often notices a soldier with several decayed and deficient teeth enjoying good health at home but on active service the same man would quickly degenerate in physique on account of the less nutritious character of the rations on active service and the greater necessity for mastication.

A varicocele of ordinary size will prevent a man riding or marching any distance. All the functions of the body must be satisfactorily carried out, but an army surgeon has often to use discretion as to how much a disability is likely to hinder a soldier on active service; for example if one precluded all men suffering from "flat feet" there would be a large number of useful soldiers rejected and yet a pronounced condition of this disability would stop a man's marching hopelessly. Although a minute examination of the physical condition of troops mobilized for active service is of value, it should cause few rejections, for throughout their service in peace time army surgeons should study the physique of all under their medical charge, and no soldier should be allowed to continue to do service in peace time, who would not be available for active service. Gymnastic training may develop disabilities not apparent on enlistment, and musketry may show that although a soldier has passed the usual test for recruits, his eye sight is of a very inferior description; this condition should be corrected by spectacles long before he has to proceed on active service, or failing this he should be invalided, for there can be no point in retaining men in the service, whose power of vision is so contracted that the rifle is valueless in their hands except for short distances.

The Medical Department of an army must have an intimate knowledge of the climate and other physical conditions of every country, so that on a force taking the field suitable recommendations can be made as to clothing, food, etc., especially precautions necessary for the prevention of diseases peculiar to the country in which troops are about to serve.

The conditions of transport for the wounded by sea or by land must be considered.

The probable length of the campaign and the number of men engaged will be the basis on which is formed the supply of hospitals and bearer companies, the equipment, ambulance, quantity and description of medical stores.

For a small force, there is, of course, no difficulty in providing medical arrangements, as quickly as the troops are mobilized; the equipment and medical stores should be conveyed without any delay to the base of operations, and should be quickly ready for use.

Before the troops receive the order to mobilize arrangements will have been made for transports to convey troops across the sea to wherever the campaign is expected to take place: these ships will all be of a type suitable for the conveyance of men and horses; all details of arrangements for living, feeding, and especially the sanitary requirements, will have been thoroughly examined by competent medical officers before the troops embark, and during the voyage every consideration must be given to keeping the troops healthy and as fit as possible to go to the front, directly after they land. The inoculation against enteric fever should be carried out early in voyage so as to give time for complete recovery, before landing. On the order to mobilize being given, a "first field dressing" will have been issued to every officer and man, and it is necessary that they should thoroughly understand its use, also the reason why it should be kept clean and protected from air. All officers should learn first aid to the wounded, and encourage their men to acquire something of a knowledge that may preserve their own or comrade's life.

On the voyage out to a campaign there is a splendid opportunity for medical officers to impart useful information to officers and men, on the subject of first aid to the wounded and rules for the preservation of health under the circumstances of active service; there is always plenty of spare time on board ship, and when the men have finished their physical drill, musketry or stables as the case may be they could all be taught a certain amount of valuable methods for saving life and limb under all the circumstances

they are about to experience. A percentage of men in each regiment will have been taught first aid to the wounded and the way to carry loaded stretchers, their knowledge can be freshened up and the more men who know how to apply first aid properly the better for a corps in action. It is certain that many lives are lost on active service from officers and men being absolutely ignorant of the simplest rules of hygiene, a few lectures on this subject would be of great value.

In transmitting medical equipment and stores to the base of operations, it is most important that every package should have its contents clearly marked, and that the separate parts of bulky articles should proceed by the same ship or train; the importance of sending forward medical equipment is obvious, but when a large army has to be fed and supplied with ammunition, it is sometimes necessary to delay the progress of medical equipment for a short time. It is therefore a very proper precaution to have light and small packages prepared of assorted compressed drugs and equipment that can be put on any trucks proceeding to the front with necessities of the campaign.

In civilized warfare there is usually something to be found in every town or village to make the wounded more comfortable, houses, furniture and even food being procurable, unless the enemy before retiring have destroyed their property, and a commanding officer must insure that his wounded and sick have every thing that can be had, and it is the duty of medical officers to point out what they require, what houses would be most suitable for the accommodation of the sick; as a rule only the large buildings are of value on account of the cubic space required and the necessity of collecting sick and wounded together so as to facilitate medical attendance and nursing; all food suitable for sick and wounded will be utilized, and any furniture that may be required, especially beds,—no wounded or sick should be treated on the ground when beds are available. If there are any shops or stores unemptied of their wares it would be very wrong not to speedily requisition what might be suitable for the sick, therefore medical officers should be authorized to search about and see what they can find for their patients. The feelings and suscept-

ibilities of the inhabitants of the country we are fighting, demand respect, but the welfare of our sick and wounded comes first; with a proper amount of tact and discretion the balance can be duly adjusted; one of the lightest penalties falling on a conquered race is to supply necessities and shelter for the sick and wounded on payment.

The details of equipment, stores and personnel of Field Hospitals, Lines of Communication Hospitals, and the large General Hospitals at the Base of Operations, need not be discussed in a short essay. The Field Hospitals should be composed of complete sections so that a quarter or half can be disconnected to proceed with a small force, the tents should be portable but should provide ample protection from sun, rain and wind, there should be sufficient cubic space for sick men. A great consideration on active service is to keep the Field Hospitals empty by constant convoys of sick to the rear, any cases that are bad enough to be sent to a Field Hospital are as a rule to be despatched to the base, the necessity of this constant evacuation of the beds of a field hospital is obvious after an action when accommodation is suddenly required for wounded so that when a battle is expected the field hospitals should usually be quite empty. The equipment of all the hospitals is year by year being greatly improved. Field hospitals require the lightest equipment possible, the boxes carried should be arranged to hold as much as possible in the space allowed, therefore compressed drugs are very useful. As regards personnel it is often found that the bearer company are having continuous arduous work whilst the men doing duty with the field hospital of the same Brigade have little or nothing to do, or vice versa, therefore it would be an excellent arrangement to interchange the duties, so that a man who had been having hard manual labor, carrying stretchers, could take a turn of nursing in field hospital. A sick or wounded man is sent to the base, there the nature of his disease or injuries decides whether he shall remain for treatment in the country or leave for home; of course the possibilities of the length of the campaign are taken into consideration.

As a rule a sea voyage is encountered before a campaign is

commenced, or if the war begins in a country where our troops are quartered, they usually require reinforcing from home, or in any case a large number of the sick and wounded require removal home, so ships for the transportation of the sick and wounded are provided according to the magnitude of the campaign.

The resources of even a wealthy nation are insufficient to maintain in peace time the medical and surgical requirements for war in a large army, and even if the money were forthcoming the necessity for the expenditure would be small, for extensive campaigns are fortunately rare, and when they do occur, the philanthropic as well as the martial spirit is aroused in a nation; there is no difficulty in acquiring supplementary assistance, the only question that arises is what form it should take. Ships, hospitals, clothing, food, amateur nursing, convalescent homes for officers and men, are all forthcoming and mostly the very best of its kind, which is but a proper return to the army which fights a country's battles. Dependencies, friendly and foreign nations, all join in helping to restore health to the wounded soldier. It is a very important matter to decide in what direction assistance should be permitted, what will be the most useful form of assistance that the Medical Department can count on when a large campaign commences, and more important still in what capacity the individuals who so freely volunteer for active service can best be employed.

A well equipped sick transport ship or hospital railway train though of greatest value, can hardly be counted on as the certain donation of a generous public in war time. Private hospitals to be of assistance must be relegated to the base, or lines of communication, even if they provide their own transport.

As regards private individuals,—a few consulting physicians are of the greatest value; where large numbers of sick are collected at the base, they are even more useful than consulting surgeons because the sick very much outnumber the wounded. The consulting surgeon is of course very useful at the base where large operations have to be undertaken, whilst at the front his valuable advice is required very often in field hospitals when a decision has to be made on the spot whether a case should be op-

erated on, for example in the various injuries to the abdomen caused by modern rifle bullets. If medical men are required to supplement the army medical officers, they should be appointed to the hospitals at the base, or on transport ships setting army surgeons free to proceed to the front for duty. The civilians who volunteer and are employed on nursing service should go to the base hospitals. There should be plenty of well trained female nurses at all the large hospitals at base, and on some of the lines of communication, also on the hospital ships it is often necessary to supplement the staff of army nurses; great care should be taken in selecting properly trained women for duty; no use can be found for imperfectly trained amateur lady nurses who volunteer their services.

As the force progresses forward from its base into the enemy's country the lines of communication are extended and the number of hospitals becomes gradually increased; if the railway can be used, hospital trains are of immense value for rapidly clearing the front of sick and wounded, connecting from the immediate vicinity of a battlefield in a few hours with comfortable hospitals at the base, so that the journey can often be made before the wounded begin to suffer from the depression consequent on their injuries.

The lines of communication extend forward to the field hospitals, which communicate with the fighting line by the dressing stations and regimental medical units; the position of these various provisions for the sick and wounded will entirely depend on the nature of the campaign whether against civilized or savage foes, the configuration of the country, the size of the force, the distance from the base, and the nature of the ambulance, different forms of ambulance being required in most of the countries that we operate in. The disposal of the sick and wounded of Infantry and slow moving mounted units is usually a very simple matter. The medical officers doing duty with corps assisted by regimental stretcher bearers render first aid as promptly as possible, and place the wounded under the nearest cover shifting them as little as possible, they make them comfortable, ease pain by hypodermic injections of morphia, and administer stimulants

where necessary; then on first opportunity of safely moving about, stretcher parties begin working between the fighting line and the dressing stations which should not be immediately behind troops in action where the bullets and shells passing over the troops might fall, but rather under best cover possible on either flank; the stretcher parties of the bearer companies will also assist in transporting wounded to the dressing stations and thence to the wheeled or other form of ambulance that is to convey all the sick and wounded to the rear. When large numbers of troops are engaged and large battlefields with many wounded are expected it is necessary to supplement the number of stretcher bearers, and this can often be done by raising locally corps of stretcher bearers from the peaceful inhabitants of the country, furnished with improvised blanket stretchers.

The disposal of the sick and wounded of mounted corps is a very much more difficult matter to deal with, and is of importance extended far beyond the medical aspect of the matter, for the object of mounting men is to render them mobile, and every wounded man in their force tends to hamper their mobility, so our object should be to quickly dispose of their wounded, and restore mobility. Up to the present time this very difficult question has not been sufficiently tackled, partly because a solution has not been found, and partly because in recent years there has been little experience of the requirements for the disposal of the wounded of mounted corps, and whilst many improvements have been instituted in slow moving ambulances, the needs of the mounted troops have not been met, so that most cavalry officers consider that on many occasions their wounded would have to be abandoned; this does not seem a very grim prospect in a war with a civilized nation, for the chances are that they will be found and treated kindly even by our enemies, but the whole aspect changes when we are fighting a savage foe, then we cannot leave our wounded to death, possibly preceded by torture and mutilation. Separate special aid should be provided removing the whole responsibility of the care of the wounded from the cavalry. There must be no division of the responsibility of looking after the wounded, for if any of the cavalry are told off to tend the

wounded, other comrades may think it incumbent on them to remain with them, whereas if adequate separate aid is provided the inclination to fall out and remain with wounded comrades could be absolutely prevented, and fairly forbidden, for the knowledge would be patent to all that the best provision possible was being made for the wounded and that no responsibility rested with the fighting mounted men. The cavalry leader's hands would be indescribably freed, the numbers of the fighting line would be much increased, the many extra casualties that occur, when withdrawing wounded, would be much reduced. The mounted man goes on active service, glad to take many sporting risks, with small parties with which it is impossible to send a medical man he may when wounded suffer from inadequate surgical attendance if comrades cannot remain with him. When wounded he may be quite unavoidably altogether abandoned, or there may be much delay in finding him and bringing him for proper treatment, or he may be captured by the enemy simply because he cannot be carried off, when wounded. I wish to demonstrate how these risks may be greatly reduced, if not totally prevented, by making arrangements for rapidly moving ambulances. The quicker the wounded are disposed of the more men there will be in the fighting line. Comrades who group themselves around the fallen are all the time very obvious to the enemy, so more casualties result, and during the delay caused by withdrawal of the wounded the position of the force may be unnecessarily disclosed to the enemy, or there may be great delay in returning with the information that the cavalry went in search of. Under the conditions of modern rifle fire and antiseptic surgery the wounded if gathered may shortly recover to fight again in the same campaign instead of becoming prisoners of war. Mounted troops require transport that can proceed when not loaded with wounded as quickly as the corps to which it is assigned for duty. When cavalry are moving some distance, and are spread over a wide front, the ordinary bearer company with slow moving ambulance is out distanced from the beginning of the day. The scheme that I would suggest is simple and would involve little expense to the State.

Preliminary detail:

- (1) Saddle Crutches.
- (2) Mobile Carts.
- (3) Personnel.

(1) The saddle crutch is designed to carry any wounded man who can mount his own horse with assistance, and who does not require stretcher support. The majority of wounded mounted men can, with assistance, reach their saddles, and the crutch having been applied they are securely supported and can be conducted off to the field hospital. The crutch should be used with all small parties with which ambulance carts cannot be sent.

This crutch has been described in the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES; it has now been thoroughly tried and a committee ordered to report on it recently has given the opinion that it would be in every way satisfactory and a valuable addition to ambulance equipment.

(2) The mobile cart is designed to keep in touch with mounted corps, for ambulance to be of any value must be able to proceed when empty at the same pace as the corps to which it is assigned for duty. Valuable time would be wasted if ambulance for mounted troops marched with field hospital establishments for it would be required to go a double journey instead of one back to field hospital.

The cart should be light and strong enough to proceed quickly over rough ground when empty, and should carry four recumbent cases. A four-wheeled cart carries four lying down cases better than a two-wheeled vehicle, the larger number of patients carried in one cart, the less number of carts required with troops,—a great consideration. Detached bodies of cavalry constantly bivouac for the night when patients can be comfortably housed in four-wheeled vehicles.

One cart should be provided for each cavalry regiment in peace time for instructional purposes and for use to carry sick on field days or manoeuvres.

When mobilization for war takes place, similar extra carts will connect between the regiments and field hospitals and the men of the detachment of each cart are required to render first

aid to the wounded. The number of extra carts required would be decided by numbers engaged, the distance separating from the field hospitals or the time that the force would be wholly isolated and would have to carry its wounded with it. One cart with its detachment for every squadron would probably be a proper proportion for troops on active service and the extra carts with their detachments would be drawn from regiments not mobilized.

(3) The personnel should consist of five men for each cart, one would drive the pair of horses in yoke, the other four would ride forward with the troops, one man carrying a cart stretcher jointed so as to fold and be carried in a saddle bucket. It is necessary that these men should be mounted, because there would not be room in the mobile cart for them and they have to render first aid to the wounded, superintend the adjustment of the saddle crutches to the saddles of the wounded men who are able to ride their own horses back to the field hospitals, or if any lying-down accommodation is required they place the wounded on stretchers and convey them to the carts halted near at hand in a place of safety. The mobile carts would never proceed well up into the fighting line. Stretchers and saddle crutches would be in use under fire; medical officers with corps would make provision for the removal of the wounded, and arrangements would be controlled by all movements contemplated whether of advance or retirement. For example supposing a regiment had several badly wounded men, and a rapid retirement of the force was about to take place there would be sixteen bearers with the corps in action. A cart would, when loaded with its four stretcher cases, proceed at once to nearest field hospital, but its detachment of four men would remain and would be employed in first aid to wounded, and would be assisting to load up the other carts, so as to expedite the removal of all the wounded. If the country is very open and the carts therefore some distance away, the return of the stretcher parties will be expedited by their horses going back with them to the mobile carts. Two dismounted bearers would be carrying stretchers loaded up, and two mounted bearers would be leading their horses for them; having placed their wounded men in the carts they would gallop back to the fighting line. If

the mounted force is isolated, the cart when loaded up with wounded proceeds as slowly as possible but safely keeping touch with troops; of course in civilized warfare they would take the nearest good road to a hospital without escort.

The above brief detail of the requirements of my scheme is sufficient to show that it is simple of introduction, and that in consideration of the advantages gained the expense is small. It is the solution of a very difficult problem that becomes patent to anybody on active service with mounted troops.

The experience of every campaign shows how necessary it is to make the best possible sanitary arrangements for a force from the commencement of the operations. If a force takes the field, proceeds rapidly forward, and soon achieves its object, the health of the troops engaged is usually uncommonly good; the health of the majority improves considerably by campaigning, but if a check occurs, and troops are delayed in camps for a time, and one body of men after another passes over the same line of country, then disease appears that unless all combine in sanitary precautions to prevent it, soon grows apace. There are of course on active service, wholly unpreventable causes of disease, a bad camping ground and unwholesome water supply may possibly have to be taken up for purposes of defense of a position; these must be changed as soon as possible, arrangements should always be made for boiling water for drinking purposes, for if the water is protected from contamination during the cooling process, this manner of rendering it innocuous is superior to any form of filtration, because of the great difficulty of keeping filter clean and in working order on active service. The most expensive apparatus for boiling, its transport, and that of a large quantity of fuel, is as nothing compared with the loss of lives of well trained soldiers it would prevent.

The common fly appears on active service in all but cold climates, directly any camp or post has been occupied for a few days; he demonstrates the presence of filth and the possibility of his contact with it, for if there were no attraction he would not be there; every effort should be made to prevent the fly coming in contact with the enteric stools, if unfortunately that disease should

break out; for depend upon it the fly conveys the disease. If trenches are used there should be plenty of earth to shovel over excrement, directly after it is voided. It is a much easier thing to keep the fly from the enteric stool than from food, although every precaution should be taken in this direction as well. In addition to the reasons mentioned that go to make enteric fever so frequent, on active service personal cleanliness is somewhat neglected, and when tents are used men are crowded together in an atmosphere that favors the transference of the disease. In standing camps excrement should be burnt.

In the old days of campaigning when the wounded were herded together without the possibilities of rapid transport to the base and without antiseptic precautions of surgery, many casualties occurred from septic fevers that are now found to be altogether preventable.

Antiseptic surgery and small-bore rifles have much improved the chance for the wounded although of course their numbers are in no way decreased.

If sanitary science were permitted to apply these precautions which are known to be necessary, the reduction of an army in the field from deaths and invaliding for preventable diseases would be at the minimum.

RED CROSS MAP OF THE URUGUAYAN CIVIL WAR OF 1904.

THE Uruguayan Red Cross Society has issued a map indicating by a red line the movements of the Government's army, and that of the revolutionaries; and by a red cross the positions where the Society established its dressing stations, and rendered first aid to the wounded. Black crosses mark the places where engagements took place. Finally a diagram in a corner of the map indicates the number of wounded that were admitted to hospital or treated, in each place.—SAMUEL M. DELOFFRE.

FIRST AID TO THE WOUNDED IN NAVAL BATTLES.

By DON JUAN REDONDO,

MADRID, SPAIN.

SURGEON OF THE FIRST CLASS IN THE SPANISH NAVY AND DELEGATE FROM THE SPANISH NAVAL MEDICAL CORPS TO THE INTERNATIONAL CONGRESS OF MILITARY SURGEONS.

AMONG the multiple and various problems of naval surgery which must be the constant object of the attention and study of naval surgeons, there is one that in my opinion deserves the preference. It is of exceptional importance from the moment that a man-of-war is ready for battle and easily applies to everybody comprised in the crew of the ship. I refer to first aid to the wounded in naval battles,—the subject that I have selected to submit to the consideration and examination of the International Congress of Military Surgeons of 1904, because I consider it most interesting to take up with the greatest possible exactness everything relating to it.

The Military Surgeons of all countries have always been quick to follow scientific progress by making a prompt application of the conquests of science to the special field of medicine in which they are engaged. But as military and naval medicine and surgery have their peculiar features that give a distinctive character to the diseases and wounds contracted on the battlefield and on board ship, the judgment that we form will not have the necessary force until proper experience has well defined the fundamental principles that must serve us as a guide to mark the line of conduct that we should follow in every case.

The relative frequency of land operations during the last century has enabled the army surgeons to collect sufficient data to begin the formation of the body of information which must serve as a guide to the larger branch of the great medico-military family. Those who form the lesser branch of the same great body, who serve in the naval medical corps of every country,

have found themselves under circumstances more unfavorable for arriving at the achievement of this common aspiration. Since the total transformation of the material of naval fleets during the last thirty years, neither the naval line officers have been able to arrive at an agreement as to the true value and best manner of employing the offensive and defensive features that the genius of invention has placed in their hands, nor have the naval surgeons been able to fix in an indisputable manner upon the course that we should pursue for the solution of the very difficult problems that we have before us at the moment when two naval powers begin hostilities. This creates a situation full of obstacles that we must try to avoid or overcome if we believe accomplishment to be our duty and if we aspire to make the sanitary service of the navy meet the exigencies of the time in which we live. That is the end I have in view in presenting to the Congress this very modest address.

In order to arrive at this end I consider it necessary to examine in their several aspects the points which I intend to discuss, because I firmly believe that if we are to know things it is indispensable to penetrate them intimately and study them in all their details. I also believe it indispensable to see how the influence of surroundings bears upon them. I consider it absolutely necessary to bring into relief the elements that we have at our disposal for the solution of the problem, and, adjusting myself to this situation I will begin by making a brief general examination of the character of modern wounds, limiting myself to saying in a few words what I have learned by personal experience.

In modern armies the principal fighting arms are guns of various dimensions and the small caliber rifle. As a matter of fact wounds by firearms are all that naval surgeons have to dress when operating on shore. The same occurs more or less with army surgeons. The legendary charges of cavalry and memorable bayonet attacks have passed into history with the appearance of the modern rifle. The occasional and isolated cases of traumatism, not produced by the missiles of the several kinds of fire arms, only emphasize the wounds more frequently produced in modern war.

I am of those who believe that the substitution of smokeless powder, the great initial velocity, the extraordinary power of penetration and changes in the construction of projectiles of small caliber, are the causes which have contributed chiefly to the differences in the wounds caused by quick fire rifles and those occasioned by the old leaden bullets. An illustrious Spanish General told me on one occasion that it does not look as if the modern projectiles have modified the principle that the effect of the impact is the resultant of the mass multiplied by the square of the velocity.

For nobody is it a secret that in the immense majority of cases the injury produced by these projectiles is insignificant. They pass through the tissues almost without injury to them and at times the wounds of entrance and exit are difficult to distinguish, particularly if there be a little inflammation of the injured parts. Everybody knows that superficially the wound is smaller than the producing missile. But the peculiarity of these wounds is their quick healing in the greater number of cases, and a certain innocuousness attaching to the injury of the tissues. On this score, I have no difficulty in accepting the classification of humanity,—assigned by some to them,—notwithstanding the enormous destruction that the same projectiles cause when striking a bone or when accidentally or intentionally deformed before striking the body. It would be however a great mistake to attribute to the projectile only benignity in wounding. Without derogating from its importance we must admit that innovations made in dressing materials and changes in operative methods among surgeons have contributed as much as the diminution in caliber and other conditions to which we have referred to give the modern missiles the position that they enjoyed between combatants and surgeons.

The small projectiles hardly ever introduce into the tissues fragments of cloth or portions of the sailor's or soldier's uniform or foreign bodies to infect the wounds. Practically we may consider them aseptic. And it is sufficient for the person applying the first dressing not to infect them for the healing to be quick and leave remaining no track of the passage of the missile through the tissues.

Volkmann. had reason when he said that the fate of the wounded rested in the hands of the one who applied the first dressing, that military surgeons should give up probing wounds with the promptness which they used to exercise in order to find and extract the projectiles that without the least inconvenience can remain where they are until we can extract them with the necessary guarantees; and the immediate application of a simple dressings has been as beneficial for the combatants as the reduction of the caliber of the rifles. It is true that these are not the only arms that soldiers use. The artillery causes also a considerable number of wounds that differ absolutely from those caused by the missiles of the small caliber rifle. But as the proportion of the latter is far greater, it is these which give character to the wounded on the field. And to the destruction occasioned by rifle bullets has been directed all that has been said and done of late years in the way of procuring a first dressing efficacious to wounds on the battlefield. Is it the same on shipboard?

The gun is the principal fighting arm of the modern man of war; but as we have had occasion to see, neither the bullets en masse nor their fragments at the moment of explosion are the only agents of wounds on board ship. Leaving aside the tremendous catastrophes occasioned by the explosion of a ship that in a moment causes the loss of several hundred men, producing also other horrid mutilations and immense injuries, as all iron or wood objects on ship board are transformed into mortal projectiles in being forcibly destroyed with violence equal to the enemy's projectiles,—the burning of the ship; the explosion of the boilers or torpedoes within or along side the ship; the crash of the shell; the steam escaping through a broken pipe; the asphyxiating smoke from a broken funnel; the destruction of a turret; the displacement of guns; and an abundance of other things which unite their destructive action to the projectiles of the foe, give to naval combats an imposing magnitude very difficult of imagination, even by persons of more privileged fancy; it is necessary to see it to understand to the full extent the great difference existing between sea and land battles. This gives rise also to the greatest differences between the wounds in one case and in the other.

The wounds of naval battles are characterized, first, by their great extent; second, by their multiplicity; third, by the frequency with which fragments of missiles, portions of cloth and other foreign bodies are found embedded in the tissues. An extensive wound occasioned by an irregular or deformed mass propelled with great force, must necessarily be accompanied by considerable injury to tissues, fracture of bones and breaking of vessels,—circumstances which must be taken into consideration by every one who intends to study practically first aid to the wounded in naval battles

The multiplicity of wounds is one of the principal peculiarities that we observe in the wounded on shipboard. It is very rare to find a wounded man with a single wound, and there may be very many on the same subject, a brutal horrid destruction of a part of the body and an insignificant lesion in another anatomical region near or far. I have aided during a battle one officer upon whose head a single shell of the enemy exploded, burning his hands and face and causing him fourteen wounds, distributed all over the body, presenting very different characteristics and greatly increasing the difficulty of applying the first dressing.

The third of the most prominent peculiarities of wounds observed in naval battles is the existence of foreign bodies in the tissues,—an infrequent accident in wounds caused by small caliber missiles; for on the contrary it is very frequent in wounds caused by fragments of shells, especially when they are broken or deformed against the resistant mass found in its passage through the ship. What is worse is that wounds in naval battles, in the great majority of cases, are not and cannot be aseptic wounds in which we can hope for quick healing under the simple first dressing applied on the instant and only requiring this happy feature, not to be troubled nor touched nor infected. Their septicity on the contrary calls for the employment of different methods of treatment.

Examining this subject we must keep in mind that, in every naval combat, to the probable number of wounded it is necessary to add a certain number of burns occasioned by the breaking of steam pipes, precipitation of burning ashes, escaping steam, and

the near-by explosion of shells charged with modern high explosives. Violent concussion of the brain caused by the partial or total explosion of a ship or the material contained in her stores, adds an immense gravity to the most insignificant injuries occasioned under these circumstances, augmenting to an extraordinary degree the obstacles with which the surgeon must contend in applying first aid to the wounded.

As my intention is to study the subject in its whole aspect, to see if it is possible to arrive at a final conclusion after summarily examining the character of the wounds, permit me to dwell upon the conditions of the place where the wounds are received. I consider this indispensable, because in my opinion one of the greatest obstacles we find to the solution of this problem, is the interior arrangement of modern ships. I think we should not limit ourselves as surgeons to saying only what is the best dressing or what is the best agent to protect a wound at the time of battle, but we should endeavor also to overcome the difficulties inherent in the arrangement of ships.

The modern man-of-war is a wonderful exhibition of what human genius may accumulate in a narrow space. The modern iron clad differs completely from the old liner sailing-vessel without the flotation which characterizes both. No body could believe that they were links of the same chain nor imagine the intimacy of their relationship. Both have the common general qualities of all bodies floating in fluid, but it is difficult to find analogies and resemblances between the old sailing-vessel of war, moved by the impulsion of the wind on the surface of her canvass, and the modern floating fortress swiftly propelled by the steam generated in the boilers carried at the very bottom of her hull. Wood, the exclusive material for the construction of the vessel in olden times was gradually supplanted by iron. After this came nickel and steel, to such an extent that even those objects of personal use which have nothing to do with the offensive power of the ship are constructed of these materials. For this reason it is not easy for fire occasioned by modern explosives to burn the ships as before.

With so many and so great exterior differences between the modern men-of-war and those of twenty-five or thirty years ago,

there are yet greater dissimilarities in its interior arrangement. Here is where in my opinion arises the true difficulty in receiving early and efficient aid upon the part of the wounded in naval combats and in extending the benefits of science to those fighting on board ship upon the part of the naval surgeons. Aside from the difficulties due to the considerable number of wounded which may be occasioned in an instant and the longer time necessary for dressing the more extensive injuries which must be attended as well as the peculiar character of the wounds received under these circumstances, the peculiar arrangement of the modern ship is the great obstacle to be studied. Through the impulse of the progress of modern naval engineering and as a consequence of the competition between protection and gun fire the extensive and clear decks, which characterized the vessels of old, are now full of redoubts, turrets, barbets, guns, and other things which have contributed to take away their primitive aspect, and under normal circumstances are obstacles to free communication between the different parts of the vessel. The batteries, those immense continued batteries of the old frigates and primitive iron clads, have been replaced by small spaces, totally isolated which give to the ships greater offensive power and on the contrary add seriously to the difficulty of the surgeon's labors. Before the discharge of the first gun, the different compartments of the ship are closed against one another for the safety of the vessel, but when the doors of communication are closed the several hundreds of men who constitute the crew of the battleship remain distributed through the fortress without communication such as existed in the old men of war.

Turrets, redoubts, batteries, engine room, boiler room, torpedo room, the military coffer and many other places separate the crew; and the men remain out of sight of each other in such manner that one who is fighting in a certain compartment remains in entire ignorance of what is going on in the others. Experience has shown the navy officers that little confidence can be placed in the simple mechanisms on which depends the connection between the commander and the crew, and experience begins to show that our sphere of action will be very limited during battle,

on account of the interior arrangement of the modern war ship.

After studying the character of modern wounds and the interior arrangement of the ship we are in possession of the necessary elements for the formation of the definitive judgment as to what first aid to the wounded must be in naval fighting; we need only to determine who, when, where and how the dressing of the wounds must be attended to. These four simple adverbs have in this case an extraordinary value because they enclose so many propositions whose ulterior development is indispensable to the comprehension of the problem in its whole extent.

Who must be the first to dress the wounded? This is a question which will certainly cause some surprise upon the part of the unprofessional man. The laymen and physicians who are not familiar with ships will surely reply that the surgeon must be the one to dress the wounds. But the surgeons and line officers of the navy know very well that there are many occasions in which the surgeons can not do this during a battle. While an action is in progress the surgeon's place is in the dressing station which he can not leave until the end of the combat. But as the dressing stations are in the deepest part of the ship,—a matter which I do not discuss at this time,—the surgeon must wait there the arrival of the wounded and employ the means at his disposal by applying the aids that he considers necessary or, more properly said, those which circumstances will permit, because, as we shall see hereafter, if at any time the power of the surgeon has great limitations it is in a naval battle.

In order to answer the question, who must be the first in dressing the wounded, in the manner in which the question has been asked, it is necessary not to forget what has been said with reference to the interior arrangement of ships and the character of the wounded observed on vessels and other peculiarities, the crew being separated into groups more or less distributed throughout the ship and without communication, so that the greater part of the wounded must remain in their place during action. The trained transportation service will be practically useless on account of the rather unsurmountable obstacles which at present obtain in ships. The men who have wounds in the head, chest and

upper extremities, if the injuries are of little importance or are grave and cause but little loss of blood, may with great difficulty proceed by themselves to the dressing station or be carried to it with the assistance of those who are in charge of this service, but the man who has suffered fracture of a leg, copious hemorrhage, shock or concussion of the brain, so easily occasioned by the explosives now in use, must be abandoned to his fate during action or must be aided on the spot where he falls.

As the first, besides being inhuman, has a deplorable effect on other combatants, it is necessary to fall back upon the second and establish the general principle that many wounded must be aided on the spot where the enemy's projectile or the fragment of iron or wood of their own ship has put them out of action. But as we have said before that the surgeon cannot abandon his place in the dressing station,—and experience teaches us that this can be done only in exceptional cases,—it results that on numerous occasions the wounded must go without the surgeon's aid or must be administered to or aided by a man who has had no surgical training.

The aid that a man applies to himself at the moment of being wounded implies the necessity of giving to every combatant the necessary elements for a first dressing. Not many years ago the opinions as to who should apply the first dressing on the battlefield were very diverse. A certain number of professors of great competence were of the opinion that this was the exclusive function of the surgeon and the subaltern sanitary personnel which the surgeon has under his orders. Today the tendency goes by another road and the idea is every day more general that the first dressing can be applied by a man of mediocre intelligence who has the necessary presence of mind to see the blood of the wounded flow without experiencing surprise.

I will not deny that I do not partake of this general opinion although it will be perhaps to go against the current, and I will not pass in silence the opinion that the first dressing or the "individual dressing"—as in my opinion it ought to be named,—can only be truly useful when applied by trained hands or by persons who know what they are doing. Notwithstanding I believe that

every fighter must carry with him the necessary elements to make a first dressing. If it is the surgeon who aids the wounded he will obtain great benefit from its employment. The same can be said when it is a trained nurse. It finally would be sufficient for one out of every hundred men to be able to use it properly to apply it to the other ninety-nine.

Aside from this I admit the principle of the individual dressing. The idea was not originated on shipboard but in the barracks and battlefield, but it is necessary to admit it on shipboard because it is the initial link in the chain of first aid to the wounded. Among the several first dressing packets invented during the last forty years, I do not consider any one as useful on shore as the one invented by my illustrious friend Colonel Nicholas Senn, exhibited in the Military Section of the International Congress held last year at Madrid. Justice compels me to praise it warmly and I have no fear in saying that I consider it most convenient on board ship where the character, extent and number of the wounds and destruction of the tissues hard and soft, render it very difficult to find one individual dressing which meets the multiple exigencies in these cases.

The individual dressing, with the practical limitations that can be accepted constitutes the most elemental form, the simplest expression of first aid to the wounded in naval fighting. Its character is transitory. Unless it has been the surgeon who has applied it, no matter how insignificant the wound, it must be revised. On board ship, only in the near cases, can we hope to see what is so often seen on land, since the general use of the small caliber rifle and since surgeons as a rule do not disturb the wounds until they can do so under proper conditions of asepsis. On board ship the rule is that the wound occasioned during the fight is infected, so that only the surgeon can give to the wounded efficient help; this reduces the importance of the first dressing packet but does not revoke it.

In the order of application of aid in naval combats, after those which the wounded man applies to himself or his comrade with the individual dressing that every one must possess before the beginning of the fight, come those which can be attended

with the means previously established in predetermined places of the ship generally known by the name of relief stations. I fear that the signification of this word has been misused and that it implies something more complex than can be established at the moment of fighting. But as I do not now study the organization of the sanitary service I put aside the examination of this interesting question, limiting myself only to the fact that the relief stations of ships are, if the phrase be permitted, an amplification of the individual dressing. They must contain all the indispensable means so that the surgeon sometimes and the combatants in the great majority of cases may find materials to make a more efficient dressing than the individual dressing. When a man is bleeding and the hemorrhage exposes him to loss of life if it is not opportunely attended, a simple constrictor of elastic rubber applied in any manner by the wounded himself or by a comrade, placed upon or under the clothing, but always at a point between the bleeding wound and the heart, can save the life of a man, and has saved many cases, provided only that the application be tight enough to interrupt the circulation of the blood in the affected member.

If I had to reduce to arithmetical formula the value of the aids which are given to the wounded at the relief stations, I should say that it is the individual dressing multiplied by ten. More than two months ago by order of the Surgeon General of the Spanish Navy I constructed a relief station that in my opinion gives the measure of what first aid may be given to the wounded at one of these places. The box contains ten elastic rubber constrictors and fifty dressings of good size and very easily applied; the two principal indications that can be met with them are to control the bleeding and protect the wound from exterior influences. They have also some other objects and materials that can be useful without the surgeon being the one who uses them, but the principal aid, the rather exclusive aid, that can be given with them under these conditions and places, is that which we have indicated. It is very much less than those believe who study the question theoretically and than those imagine who, as suggested by the surgical work of the battlefield, wish to bring

to naval combats the benefit that modern progress has given to the sanitary organization of land forces in campaign. The surroundings are so different that it is not possible to obtain the same benefits in both cases, nor to establish under identical conditions the relief stations of the ship and the dressing stations of the forces operating on land. There is sufficient justification however, with what in reality is obtained, for its existence on ship board.

When speaking of first aid to the wounded in naval battles it would be natural to begin with those which the surgeon directly and personally applies. These being the more important and better definable, we have believed it preferable to do as we have done, because we find it more adjusted to the reality and more in harmony with practice. For the reasons that we have stated before, I submit that the surgeon can never leave the dressing station during the fight. Perhaps there are some exceptional cases however and we could quote an example in which the surgeon by personal impulse or superior orders might be compelled to go out, but this is so rare that it should not be taken into account in studying the subject in its general aspects.

It follows that before aiding the wounded to the dressing station, that is the fighting post of the surgeon, they might and could receive some aid either because they have used the individual dressing which every combatant must be supplied with or because they have used the material installed in the relief station. Great or small as may be the efficacy of these means they are the only ones which can be employed before the wounded are subject at the dressing station to greater and more scrupulous sanitary care. We wish to say however that the only efficient aid that the wounded can receive is that given by the surgeon. But it is necessary to know also that the semi-ignorant application of a constrictor by an unlettered sailor can save the life of a man while he awaits the aid of a surgeon.

I will now speak with a view to fixing with the greatest possible exactitude the aid which the surgeon can give to the wounded at the instant of the fight. Some surgeons and not a few line officers believe that the duties of surgeons in naval combats are

passive and that they could easily be dispensed with during action. Those who think so are so mistaken that it would be sufficient to demonstrate their error for a surgeon of the navy in any country to relate his experiences of a naval battle in which he has taken part. The surgeon is always useful on ship board. In numerous cases he is very necessary. It is absolutely indispensable that no man-of-war should discharge the first gun without having everything prepared for dressing her wounded, as can easily be understood. I will not say that the line officer should subordinate his conduct to that of the surgeon, but it is our duty always to be in condition to aid the combatants.

I assume now that the surgeon has at his command a dressing station properly established and equipped, a thing very difficult to find in the war ships of every country. What are the indications in these cases? This is a question that comprehends the entire subject and carries with it the key to the problem we are studying. The categorical answer is, that the surgeon must be limited to meeting purely vital indications, putting aside until the end of the action or until the wounded have been transported to the hospital ship that should accompany every aggregation of naval forces, the performance of operations that are not immediately necessary.

Judging from the past, we have to take into account the probable direction of the naval battle, the number of wounded easily occasioned in a normal action, and especially the character of the injuries. We can understand without great difficulty the obstacles that the surgeon finds in the enormous mutilations caused by the implements of destruction employed on modern vessels; one only of these wounded is sufficient to absorb the attention of the surgeon during the whole fight if he wishes to treat him with the scrupulousness that every gravely wounded man deserves. But more often he cannot do what his good will demands. For it is no easy matter to act as we have indicated. His mission must be limited, in the order of choice, to stopping hemorrhage, for with the escape of blood from the vessels life also escapes; to closing solutions of continuity and covering wounded surfaces with adequate simple dressings; and to reviving with injections of

serum and stimulants those men who after having been under great mental tension easily fall when wounded into a condition of shock from which it is very difficult to bring them out.

But is this the only thing that the surgeon can and must do? No. I firmly believe it is not.

In treating of first aid to the wounded in naval battles we maintain the principle that they must be those which we have spoken of; but this will not mean that the surgeon must always be confined to so narrow a circle. This formula requires sufficient amplitude and elasticity to permit the extension of the benefits of treatment when circumstances are appropriate. Not all the ships that take part in a naval fight are in the same situation; after half an hour for example some may have suffered enormous injuries, and in a short time become incapacitated from continuing action; others on the contrary, more fortunate or less vulnerable to the enemy's projectiles, will maintain their efficiency. There are essential differences in the two cases that line officers will take great care to profit by. Why does not the surgeon do the same? Why do we not regulate our conduct by a similar criterion? On land as on board ship, the conduct of the surgeon must be regulated first by the number and importance of the wounded to be aided at the instant of fighting, and second by the elements at his disposal for doing his work. He cannot escape these two primordial influences. The first is the more important, because without an accident to deprive the surgeon of the surgical and dressing materials, which all ships have on board, he should have the means necessary to comply with as many indications as the most violent traumatisms would demand. This being so, what inconvenience would there be in enlarging the surgeon's field of action? If circumstances permit this much, may he not still further extend his practice of urgent surgery?

The naval surgeons of every country frequently perform on board ship important operations imposed by the necessity of the moment and this is the criterion that in my opinion we must approximate during battle. I am not inspired by algebraic formulae nor by sententious phrases, but were I to express this idea in a few words, I would say that the surgeon in naval battles is obliged to do for the wounded all in his power.

By the abundance of diverse circumstances that we have indicated in the course of this paper the work of the surgeon will be limited during action. He could do for the wounded the same as a man of the Hospital Corps, for example, who is on the more advanced post of the firing line, applying a first dressing to the soldier at the instant of the injury. If he dress him at the dressing station, as at a relief station or on the spot where he falls, a thing very frequent on the old ships but impossible on modern vessels, the surgeon will be limited strictly to seeing that life is not endangered by bleeding and protecting with a simple antiseptic dressing the surface involved. But if circumstances are favorable he can and is obliged to do more.

I am in accord with those who always demand the best conditions of asepsis, and partake of the opinion of those who believe that the surgeon's great labor does not begin until the end of the fight. But this does not mean that the surgeon must systematically do only the indispensable during the fight. I consider it not improper for the surgeon during the fighting to perform if he can important operations, if the salvation of the wounded depends upon it and there is some probability of success. I shall not refer to the putting aside of the dressing of the slightly wounded in order to attend preferably on the more seriously injured. The wounded themselves understand that this is the rule that must be observed.

These ideas, strongly rooted in my mind, are the logical and natural sequence of the experience that I have acquired in practice. They originated many years ago, when in the beginning of my career, I received, in military parlance, my "blood baptism." Notwithstanding the time that has passed its memory recurs to my mind whenever I speak of these matters. I had established the dressing station down one small redoubt, and as the ship was fighting with an enemy intrenched on shore, I amputated the thigh of one sailor and the arm of another. The injuries and destruction of hard and soft tissues had been so considerable that there was no possibility of saving the men without the sacrifice of the wounded parts. The operative indications were absolutely irresistible and I had no hesitation in performing the two ampu-

tations. Notwithstanding the difficult circumstances in which we were situated, a few days after the operation the wound of one patient was totally healed. It would be impossible to obtain a more happy issue in the best furnished operating room. The other patient also justified the immediate intervention, and both left on my mind the germs of a belief which similar events have since confirmed.

I should be very sorry if by my defects of expression anybody should infer that during action surgeons should undertake every kind of operation. No, this is not what I believe. Our operative intervention must be very limited, and as a general rule it is necessary to act on the principle of postponing surgical operations until the end of the fight. Then on the same ship or in the hospital ship, the wounded could be operated upon under more favorable conditions. But this does not prevent the possibility of action in cases in which an early intervention may be possible and more desirable for the wounded than delay.

Before closing I must say that not only the tendency to defer action but that conservative spirit, which you graphically call conservatism, has inspired Spanish conduct since the most ancient epochs. Our surgeons of the seventeenth and eighteenth centuries abided by similar rules. Immediate intervention is justified only in cases under very peculiar circumstances but if these are present it is the duty of the surgeon to profit by them which is no obstacle to making predominant today a systematic tendency to delay operative action until the end of the battle. This is what must be done in general although not what must be done in all cases.

CONCLUSIONS.

1. First aid to the wounded in naval battles is one of the most important problems in modern naval surgery.
2. To comprehend the extent of its application it is necessary to fix with exactness the character of the wounds, the peculiar conditions of the modern ship and the elements that we have at our disposal.
3. The wounds occasioned in naval battles are characterized by their great extent, irregularity, multiplicity, and the frequency

with which fragments of the projectiles and foreign bodies remain therein. Practically they are septic wounds. Burns, varied traumatism and shock often complicate them.

4. The interior arrangement of the modern man of war creates great difficulty in the application of quick and efficient aid to the wounded during battle.

5. The sanitary service during the fight must be in keeping with the actual arrangement of the modern war ship. The greatest obstacle to the solution of the problem that we are studying lies therein.

6. A good sanitary organization must be careful of the wounded since the man is put hors de combat.

7. The wounded must receive some aid on the spot where he falls.

8. Every combatant must be provided with one appropriate "individual dressing." Though its value is very limited it should not be dispensed with.

9. The "relief stations" are the point of connection between the deck and the dressing station. Their utility is less than is generally believed. It is sufficient however for a man to be saved in them, to entirely justify their existence.

10. The wounded can only receive efficient aid at the hands of the surgeon.

11. The dressing station is the fighting post of the surgeon. In it is where he can and ought to care successfully for the wounded.

12. As a general rule it must be established that the surgeon should limit himself during action to fulfilling purely vital indications; it must be his principal mission to stop hemorrhage, cover the wounds with a simple dressing and revive those who are victims of syncope or shock. This rule must not be so absolute as not to permit the practice of important operations when circumstances permit.

DISCUSSION.

THE PRESIDENT (Medical Director JOHN C. WISE, U.S.N.).—I regret that this valuable paper was not read in connection with the one which I

had the honor to present day before yesterday.* There will be no dissent to the general conclusions of the paper excepting the matter of dressing stations, the mobility of the medical officer and the extent to which first aid instruction should be carried. In views hitherto published our distinguished Spanish delegate pronounces in favor of stations for the wounded installed when a ship is under construction. I cannot agree to the wisdom of this, as the conditions are so uncertain; they might be in line of battle such as would render a previous point of selection useless. I am further in favor of the medical officer (one or several) being equipped and ready for duty in any part of the ship rather than being confined to a station. If I had in a short phrase to say what is most important to a man in a naval action from a medical point of view, it would be, "learn to help yourself." Teach first aid not to "one in a hundred" or only to the aids to the wounded in a gun's crew, but to every individual. Give instructions, simple though they be, yet so all important for the preservation of life; there is no service where such training is so obviously needed as in the naval service. The views of an officer of Don Juan Redondo's ability and unusual naval experience, merit the most careful consideration of all interested in the problems he so ably has presented.

SURGEON H. G. BEYER:—It seems to me from what I can read and hear in regard to first aid in naval battles, that the question finally limits itself to the fact that first aid must be given on the battleship. This can be done by sailors after or during the battle. If a hospital ship is in the close vicinity it will take the place of a field hospital in a land battle. On the hospital ship the most necessary operations will have to be done, but the final treatment of those very much and seriously injured must be done at the base hospitals as long as we have base hospitals on land. The aid of the battleship would correspond to the firing line on land. The hospital ship will correspond more or less to the field hospital and the shore hospital to the base hospital. These are the things we will have to sift down, and when we finally get a method by which we can transfer our sick and injured to the hospital ship as quickly, or more quickly, than we are able to do now, by the trolley method, which I hope will be worked up,—then I think we can speak of being prepared for naval warfare.

MAJOR JAMES EVELYN PILCHER:—I am glad to hear a discussion of first aid from so distinguished a source and to know that he is so far in accord with American views upon the subject. It seems to me however that the necessity for universal instruction in first aid should be more strongly brought out—the teaching of every man how to render to himself and his comrades the care that may avoid death or permanent disability. This I have always urged and still believe to be of the highest importance.

*First Aid in Naval Warfare. By Medical Director John Cropper Wise, U.S.N. JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS, Vol. xvi, page 153, March 1905.

CHEST WOUND BY A KRAG RIFLE AT FIFTY YARDS.

By MAJOR GEORGE H. HALBERSTADT.

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BRIGADE SURGEON IN THE NATIONAL GUARD OF PENNSYLVANIA.

IN November, 1903, Private R. J., 8th Regiment, N. G. P., at the rifle range, qualifying as a marksman, fired the requisite number of shots, as he supposed, and handed the empty rifle to his Captain. The man ran toward the target to assist the scorer to close up for the day.

The Captain thinking the rifle empty, pulled the trigger, fired the last cartridge, and the man, fifty yards in front of him, dropped instantly. He bled profusely from the wound and expectorated quantities of blood. With assistance the man walked about one mile to the Armory, and from there was transported to the Pottsville Hospital in the ambulance, after the first dressings were applied.

On examination, a perforating wound of the chest, one inch below and to the outside of the angle of the right scapula was found. The bullet had entered between the ribs. All objective and subjective signs showed the bullet to be in the lower anterior right lung or pleura, near the median line.

The wound was antiseptically dressed and recovery without complications followed. He was discharged a few weeks later and since then has suffered no inconvenience.

In 1896 or 1897 General Griffith of Missouri, at the suggestion of General Sternberg, conducted a series of experiments to demonstrate the effect of the new bullet on the cadaver. Among his observations, he stated, that loose earth stopped and disfigured the missile at the various ranges. The bullet will penetrate 22 inches of oak and 44 inches of pine, and under certain conditions is said to go through seven men. The smokeless powder cannot with safety be used in blank cartridges, for the reason that all new explosives exert their force in the direction of resistance.

Is there not a similarity between the action of the loose earth and the muscular and lung tissues on the steel jacketed bullet?

Does the explosive transmit to the missile its characteristic, i. e., that its penetrative power is increased or diminished by greater or less resistance?

DISCUSSION.

SURGEON H. G. BEYER, U.S.N.:—This is a very short but interesting paper; it might be discussed at great length. In some experiments which I made immediately preceding the Spanish-American war with a naval projectile, they demonstrated the great penetrating power of this projectile as long as the jacket remained undeformed. The exception was that noticed on living animals, such as dogs, pigs and cows, in which the soft-jacketed bullet met with bones, etc., by which it was deformed and lost its penetrating ef-



Skiagraph of Chest Wound by a Krag Rifle at Fifty Yards.

fect in consequence; so far as the penetrative effect on the lung tissue was concerned, the lungs being removed from the animal and aimed at a very close range, the lung tissue was scarcely affected at a distance where the projectile in muscle and bone would have produced a tremendous explosive effect. It was difficult sometimes to discover any perforation at all, although you could stand in front of the inflated lung and fire right through it without getting any effect, except a little collapse caused by the loss of a little air with which the

lung was inflated. Naturally that is the result of the resistance of the lung when inflated, and consequently we do not get the lateral effect we do when the resistance is greater. Of course, that would show what the major has suggested, that the explosive and lateral effect of the bullets will increase in direct proportion to the resistance offered by the tissue itself. We have had instances where the stomach and intestines were perforated by bullets at a very short distance with very little effect except the perforation; but the matter was different when the intestine was filled with the contents. Then we got the explosive and extreme lateral effect, just the same as when you get shots through the liver. The liver is a semi-fluid organ, and there we would get those explosive and lateral effects at the same distance which would have hardly any effect on lung tissue, or other viscera when undisturbed by food or fluids.

ASST. SURG. GEN. GEORGE TULLY VAUGHAN, P.H.&M.H.S.: I have not had much experience with wounds inflicted by the modern Krag, but I have seen quite a number caused by the older firearms. I remember the case of a man who shot himself, the ball going through the left lobe of the liver, and also through the abdomen and intestines, but at the operation I noticed the effect on the liver. The best way to describe it is to compare it with a pane of glass after a stone has been thrown through it; there were tears radiating in every direction. It tore the left lobe all to pieces. The man di. d.

UNCINARIASIS IN GRENADA AND THE OTHER WINDWARD ISLANDS.

UNCINARIASIS as it occurs in Grenada, one of the Windward Islands, is described by T. M. Russell Leonard, Grenada, W. I. (*Journal A. M. A.*). He is inclined to credit it largely to infection through the skin. In every case he has treated it was preceded by the ground itch. Its characteristics are practically the same as those noticed in Porto Rico and the Gulf States, but he calls particular attention to a peculiar pigmentation, observed in patients of the colored races but not in whites, which, he thinks, is almost pathognomonic. It consists of minute black, blue-black or brown spots, mostly on the lips and sides of the tongue, but sometimes over larger areas. He suggests that this pigmentation may be due to imperfect carbon elimination or may possibly indicate, the points of entrance of a parasite. The treatment which he found most effective is that advised elsewhere by others, as is also the prophylaxis.

THE CONSTRUCTION AND EQUIPMENT OF MILITARY HOSPITALS FOR CONTAGIOUS DISEASES.*

By MAJOR J. SIMONIN,

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TRANSLATED BY LIEUTENANT CHARLES NORTON BARNEY,
MEDICAL DEPARTMENT, UNITED STATES ARMY.

THE word "contagious" at once suggests the idea of isolation, and to the hospital physician it implies the necessity of a separate and autonomous hospital organization.

A contagious disease service should have its own separate locale, personnel, and materiel. As far as may be practicable, it should have its own distinct administrative departments; but when, as is usually the case, the contagious disease service forms a department of a general hospital, an exception may have to be made of the kitchen and pharmacy, the central kitchen and pharmacy of the main hospital being made to serve also for the department of contagious diseases. But, in general, this department should have the least possible connection with the rest of the hospital.

On account of the expense it is not practicable to erect special buildings for the accommodation of this class of patients at all stations, but it is practicable to reserve one or more of the pavilions comprised within the enclosure of the general hospital, or one or more wings if the hospital is a single building.

Whatever may be the general arrangement adopted, it should not be forgotten that collective isolation alone is not sufficient, and that it is further necessary to isolate the various classes of

*"Note sur les principes généraux de l'installation d'un service hospitalier pour malades contagieux, par J. Simonin, Médecin major de première classe, Professeur agrégé libre du Val-de-Grâce, adjoint à la Direction du Service de Santé au Ministère de la Guerre." Presented at the International Congress of Military Surgeons, St. Louis, Oct. 1904, for Dr. Simonin, by Surgeon Colonel Mareschal, of the French Army.

patients from each other, since any one of the contagious diseases may complicate or follow the disease with which the patient has already been attacked, and thus add to the severity of the case.

From the point of view of isolation the ideal arrangement would be the provision of a separate pavilion for each class of patients; of a single story, elevated above the ground, and divided into a series of small compartments which would permit of individual isolation; but in practice it is found that such an ideal arrangement is not indispensable. It may be impracticable, on account of lack of space, lack of personnel or lack of money; and, since it complicates the difficulties of administration, it may even be undesirable. One can be content, then, with a building of more than one story, in which the patients are separated into different sections, the lines of division running either in a horizontal or in a vertical direction. If several pavilions are available at least two of them should be set aside to accommodate each a single class of patients only, one for cases of diphtheria and one for cases of erysipelas; for the reason that these diseases so commonly attack patients suffering from other affections, such as measles, scarlet fever, mumps and typhoid.

It is well to have available in the vicinity several areas of concrete over which tents or portable barracks may be erected in case of widespread epidemic.

The department for contagious diseases should have its own entrance, distinct from that of the general hospital so that contagious patients will not pass through the paths and passageways common to the rest of the hospital. As it is not practicable to provide a separate vehicle for each class of patients, the ambulance should be disinfected at the hospital after each trip in which it has carried a contagious case. Under no circumstances is it allowable to jumble together in the same conveyance patients with different contagious diseases, for in the inevitable promiscuities of a voyage in common patients with scarlet fever, measles, erysipelas and diphtheria are very liable to exchange their specific germs much to their mutual disadvantage.

To prevent the same contingency it is desirable that the yard for convalescents be divided into sections for the various classes of patients.

Still further to avoid the possibility of promiscuous contact, it is well to attach to each convalescent's clothing a large badge or brassard, the color of which will indicate the disease with which he is affected.

If the department for contagious diseases comprises several pavilions it is necessary to connect them, and this connection may be made by galleries closed in with glass, or still better by well ventilated and well lighted underground passageways. These will facilitate the transportation of patients and of food during the cold season and in bad weather.

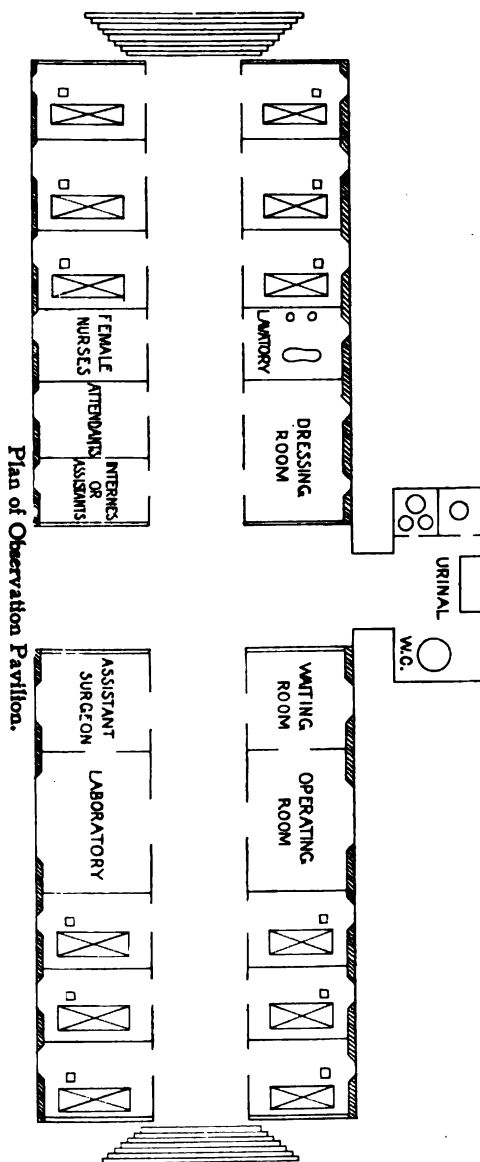
At the entrance to the department for contagious diseases a small building or section must be set aside for patients in whom the diagnosis at admission to hospital is uncertain. In how many instances are non-contagious rashes sent in as contagious! How often are sore throats diagnosed as diphtheria! Even pustular acnes are mistaken for variola, alveolar abscesses or otitis for mumps, and eczema for erysipelas, and vice versa. Experience has shown the absolute necessity of an observation ward to assist in sorting out the contagious from the non-contagious where the diagnosis is not plain at admission.

This observation ward need comprise only a group of small rooms for individual isolation, varying in number according to the number of patients accommodated by the department. Our personal experience has shown us that this number should not be less than eight per cent of the total number of beds in the whole department.

Annexed to the observation ward there should be a small laboratory in which such chemical and bacteriological tests can be made as are necessary to clear up diagnosis. Its equipment need not be elaborate; water, gas, a glass topped table, a sink, a small Roux stove, a few stains, the usual culture media, and a microscope provided with a number nine objective and a one-sixteenth or one-eighteenth inch oil immersion. Direct microscopic examinations and rapid cultures will settle doubtful diagnoses and allow proper treatment to be instituted without delay.

The room reserved for the attending physician naturally finds its place near this laboratory. Likewise the special operating

room for the department. One cannot think of utilizing the operating room of the main hospital, not only on account of its distance away, but especially because of the liability of infecting it. The equipment of the operating room for the department of contagious diseases should include an instrument cabinet of metal and glass the instruments and dressings necessary for tracheotomy, intubation, thoracotomy, injection of antitoxic serums and of salt solution, opening abscesses, a Potain aspirator, a Paquelin cautery, nasal and aural specula, laryngoscope, ophthalmoscope, and the sounds, syringes and basins necessary for the evacuation of urine and injection of the bladder. The autoclave for sterilization, hot and cold water supply, sink, operating table, and



system of lighting for emergency operations at night, will conform to the general model adopted some years ago.

The department will receive different classes of diseases according to the season. During the first half of the year the eruptive fevers predominate; measles and scarlet fever especially, with mumps, rubella, and varicella less constant. As to variola it has become so exceptional in the French Army that one does not ordinarily need to have rooms available for its treatment. In summer typhoid and dysentery predominate but dysentery does not become epidemic every year. Cases of measles and diphtheria are likely to occur at any time during the course of the year, with perhaps a slight predilection for the cold and damp seasons; but the morbidity which they occasion is ordinarily slight in military practice. Exceptionally and in certain localities one may have to deal with isolated cases or small epidemics of plague, cholera, Malta fever, typhus, and yellow fever.

This tendency of certain epidemic diseases to occur only at certain seasons makes preparation for their isolation easy, provided there be adopted some plan of distributing the patients by which certain of the isolation rooms can be utilized successively for different effections. Disinfection removes all danger from such a method of procedure.

The number of beds provided for the department as a whole, and for each class of patients in particular, should be one third greater than the average number of patients in the department, or in the special section, as calculated from the admissions during a period of ten years. This arrangement will provide for spare rooms for emergencies, and will allow certain wards or rooms which have become thoroughly infected to lie idle for some time, and will facilitate disinfection.

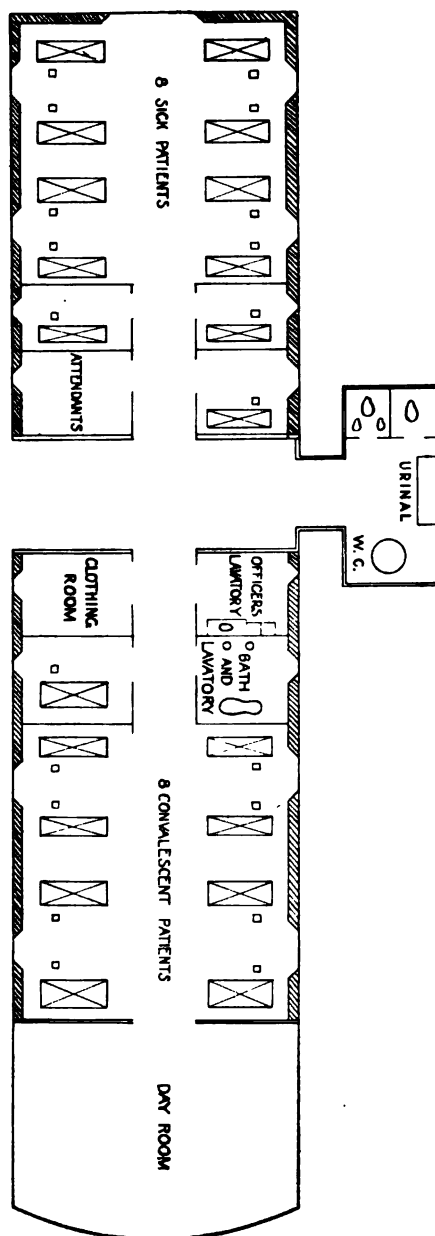
The use of small rather than large wards, and the large employment of individual isolation rooms annexed to these wards, is another factor which facilitates the accommodation of varying numbers of patients in each class.

For each important contagious disease there should be provided—

- (1). Wards for acutely ill patients
- (2). Wards for convalescents.
- (3). Individual isolation rooms for the classes of patients defined further on.
- (4). Day rooms for convalescents who are out of bed.

The separation of the actually ill from the convalescents is desirable for the following reasons: Seriously ill patients need rest and quiet. It is necessary to assign to them the greater proportion of the attendants, including the best instructed and the most faithful. On the other hand in the case of diseases which do not confer immunity, such as erysipelas, diphtheria and dysentery, it would be dangerous for the convalescents, who are susceptible to reinfection, to remain in contact with the acutely ill. Further, in those

Plan of Pavilion of Hospital for Contagious Diseases.



diseases which, like scarlet fever, typhoid and dysentery, require special dietetic regimen, or special care in the return from liquid to ordinary diet, the separation of the convalescents from the acutely ill makes supervision easier and limits the chance for those indiscretions in diet which so often cause complications or relapses.

The number of rooms for individual isolation should be one-half, or at least one-third of the total number of beds provided for the acutely ill. Individual isolation is appropriate for the following classes of patients:

- (1). Those who are affected with complications susceptible of being themselves transmitted by contagion for example, the broncho-pneumonias of measles patients, secondary diphtherias, and possibly scarlatinal nephritides.
- (2). Patients attacked by combined or associated infections: measles with scarlet fever, measles with mumps, etc.
- (3). Noisy patients and dying patients.

It is prudent to provide the windows of two or three of the isolation rooms with iron bars or gratings in order to prevent the escape of excited delirious.

The day wards for the convalescents who are out of bed will serve also as dining rooms. They are most often constituted by glass enclosed verandas at the extremities of the pavilions which are used as dormitories for these patients at night. They should be heated and lighted like the wards for the sick. Metal lockers should be provided to hold the patients' clothing. A small library may be provided, but of course the books should not go out of the ward and thus carry contagion, a danger which is a very real one in the cases of scarlet fever, erysipelas, and mumps.

Besides these principal apartments it is necessary to provide in each section a series of accessory apartments—wash room, bath room, dressing room, attendants' room, room for the nun or female nurse, and finally latrines with urinals and hoppers.

In addition to the bath room with fixed tub, used principally for the cutaneous disinfection of convalescents or patients leaving hospital, each section should have one or more portable bath

tubs, mounted on trucks, with rubber tires, for the occasional or methodical bathing of acute and febrile patients. The convalescents' wash room may be annexed to the bath room.

On account of the fact that it is usually necessary to have the patients' food brought from a central kitchen in the main hospital, there will be needed a ward kitchen just large enough to hold a small gas or charcoal stove (to use in heating up milk, tisanes, etc.) and a sink for washing dishes.

The dressing room is for the purpose of providing a place where patients who have gotten well and are leaving the hospital can put on their clothes (which have been disinfected) without having to reenter the wards. In this room those patients who are going out will take their last meal in hospital. The litters and carrying chairs may be kept here.

In the attendants' room there should be a locked cabinet holding antiseptic solutions, hypodermics, and the dressings and instruments which are used in minor surgery.

The latrines should be of glazed earthenware or porcelain as far as possible. In France the seats allow of defecation only in the squatting position—"a la Turque." The urinals may be of the type called "holy water basin", or, if the number of persons who are to use them is considerable, earthenware troughs. A large siphon trapped hopper should be provided to receive slops. All these apparatus should be flushed intermittently from automatic flush tanks.

The quarters of the enlisted attendants should be grouped in a separate pavilion. The cellar may contain the furnaces for supplying steam-heat and the apparatus for generating electric light. In one wing will be the dormitory, locker room, mess room (which also serves as day room), bath room, water closet, laundry and room for the senior non-commissioned officer.

In the opposite wing will be

- (1). The general locker room for disinfected clothing;
- (2). A little room to contain two or three small covered iron wagons for carrying the effects of patients on entry into the wards to the central disinfecting oven of the hospital, and for carrying them after disinfection to the locker room of the section;

(3). An oven for disinfection by steam under pressure, of the model of Vaillard and Besson, for example, distinct from the larger central oven of the general hospital. This is not to be used for the disinfection of bedding and uniforms, but only for the small linen used by the sick, the linen clothes of the ward attendants, and the gowns of the attending physicians.

(4). A Geneste or Hecsscher apparatus for the disinfection of sputum by heat.

The central portion or upper story of this pavilion will comprise two large rooms for storing a reserve of beds and bed linen. It often happens during the extension of an epidemic that the number of contagious cases brought to hospital in a single day is large, and one should have on hand beds and bedding to supply them.

As a general rule the pavilions should be built over ventilated basements, connected by underground passage ways. In these will run the drain pipes and conduits for water, gas and electricity,—readily accessible for inspection. Running from each ward to the basement below may be constructed a chute of glazed earthenware to conduct soiled bedding from the ward into a large receptacle below mounted on a truck to carry the bedding to the laundry. The upper end of the chute should be closed by a glass sliding door. The advisability of installing in those pavilions which are devoted to typhoid and dysentery, special furnaces for the incineration of fecal materials, may be considered. Various patterns of such incinerators were presented at the last exposition in Paris; the Brechot apparatus of the Industrial Society, and the Gewgraff and Katchurin apparatus, a Russian model.

Walls and floors—all surfaces—should be impermeable. This will prevent impregnation with infectious material and will render disinfection easy. The floors should rest on brick arches supported by iron girders. The tile pavement on the lower floor should rest on concrete. A lighter construction, hollow brick, etc. (Perriere system) will be needed in the upper floors. The ceiling should be smooth and covered with three coats of varnish or enamel. The walls should be enameled or painted in oil. Up to a height of one and one half meters the walls should be wain-

scotted with a light colored tiling similar to that which covers the floor. The junction of the walls with each other and with the ceiling and floor should be rounded, in order that they may readily be kept clear of dirt.

Running water and a slop hopper may be needed in the ward. Glass doors allow the passage of light and facilitate observation of the patients. The partitions between the isolating rooms may be made of cement blocks reinforced with iron in the lower part, and of glass above.

Windows should be large, running up from a height of 90 cm. from the floor and stopping 25 cm. from the ceiling. Below them will be placed the steam radiators and the inlets for fresh air. A very good window which has been used in a number of recently constructed hospitals has a transom at the top which turns downwards on a traverse at its lower border, and is provided with end pieces so that when the transom is open the entering air is directed toward the ceiling. The sash just below the transom is fastened by an ordinary catch, and can be opened whenever necessary for the aeration of the room, but the lower sash carries a lock and cannot be opened except on the order of the chief of the department. Ventilation, as distinct from aeration, is provided for by the entrance of air through inlets below the windows near the steam radiators, and its exit just below the ceiling through glazed earthenware shafts which run upward through the walls at an angle of thirty degrees and terminate outside in a conical mitre (Renard apparatus).

The best system of heating is that which utilizes steam at low pressure. Radiators should be placed not only in all wards and accessory rooms, but also in the communicating corridors. If the department for contagious diseases comprises several distinct pavilions it will be necessary to install a boiler in each. It is desirable to have also, in each building, an auxiliary boiler, which will be used in extremely cold weather or during repairs to the principal boiler. The abolition of stoves from the wards greatly facilitates cleanliness and appreciably lightens the labors of the attendants. The care of the furnace requires no special technical knowledge, and only two or three visits a day to replenish the fuel.

Both electricity and gas should be distributed through all parts of the hospital for lighting purposes.

The wards and especially the isolation rooms should be connected with the attendant's room by electric bells. All wards should be connected by telephone with the office of the medical officer of the day.

All the wards should be provided with hot and cold water. In winter the steam heating apparatus will heat the water, but in summer a gas water heating apparatus will be needed in each section.

The furniture of the wards should be simple and easy to disinfect. Its enumeration will be brief.

(1). Enamelled iron beds with simple mattresses of elastic metal bands.

(2). Stools or chairs, of metal, painted in oil.

(3). Bedside tables composed of four metal uprights supporting two plates of glazed earthenware or thick glass, one above the other.

(4). Odorless buckets with central hinged covers.

(5). A covered metal box, mounted on a truck, to receive soiled linen directly from the patient's bed in order to prevent infection of floors and other surfaces from unnecessary handling of the bed linen.

(6). Metal cuspidors mounted on stands, to be placed in wards and corridors, and to contain an antiseptic solution.

The enlisted attendants in the department for contagious diseases should not be assigned without consideration of what diseases they already have had. This precaution should always be taken before assigning attendants to the care of patients affected with those diseases of which a single attack ordinarily confers partial or complete immunity. When it is possible to avoid doing so, one should not assign to the department for contagious diseases members of the reserve or of the territorial army, especially those who have young children.

The outer clothing of the attendants should be of linen, and should fit snugly about the neck, wrists, waist and ankles. They should wear oilcloth caps, and brassards of a color which will designate the disease treated in the wards to which they are as-

signed. An initial might be added to the brassard,—“S” signifies Scarlet Fever, “E” Erysipelas, “D” Diphtheria, “G” General Service, etc.

The attendants should take off their clothing before going to their meals. Placards should be posted in the washrooms calling attention to the necessity of careful washing of the hands and face and of rinsing out the mouth before meals. Cresyl soap and saturated solution of boracic acid should be provided for washing. It is advisable to try to induce the attendants to use the following powder in the nose.

Menthol.....	0 30
Cocaine.....	0 10
Bismuth.....	4.00
Boracic acid powder.....	4.00

The attendants should take a full soap and water bath every second day; they should shave their beards and wear their hair short.

In each section the tours of night and day duty should be performed as far as possible by the personnel attached to that section. If the personnel is insufficient, the non-commissioned officer of the day should put on a different gown and cap before entering each section and should leave it in that section when he departs. Every evening the linen clothing, coats, aprons, gowns, etc., of each section should be disinfected in the steam sterilizer belonging to that section.

The diets and medicines should be delivered from the central kitchen and dispensary at designated hours, in order to prevent contact between the personnel of the isolation wards and the personnel of the main hospital. For the same reason the attendants assigned to the department of contagious diseases should be excused from all drills and fatigue duties which would bring them into contact with their comrades of other departments.

Such are the general principles which have been followed in the preparation of the plans, now in course of execution, for the department for contagious diseases at the military hospital of Val-de-Grâce in Paris. These theoretical ideas can be practically applied in all analogous hospital organizations, no matter whether these organizations be called upon to care for few or for many patients.

SOME REMARKS ON THE CLINICAL ASPECT OF CAVITE FEVER.

By REMUS CHARLES PERSONS, M.D.

MEDICAL DIRECTOR IN THE UNITED STATES NAVY.

DURING my stay in the Philippines from March 1899 until April 1901 there prevailed at Cavite Naval Station and at Cavite, a fever which was generally called an acclimatizing fever by the laity, and whose nature was variously regarded by medical officers. Nearly every newcomer was affected by one of its forms within the first two months after his arrival, the most of them being attacked within the first few days. One attack did not confer immunity, but in many cases it recurred at intervals of a few weeks. I was told by one individual, a medical officer, that he had had six or seven attacks within fifteen months. Some either escaped entirely, or the manifestations were so slight as to amount only to a malaise. The attack came on without regard to previous health, the strong being affected as readily as the weak. Its manifestation was generally sudden. In the morning one was in his usual health without thought of illness. In the afternoon he was in bed too ill to sit up. The onset might be a chill of short duration, or fever of more or less intensity might disclose itself suddenly. It was sometimes preceded, and always accompanied by a headache, pain of a rheumatic character in the deep muscles of the back and soreness of the muscles of the arms and legs with severe involvement of the joints. There was a feeling of great restlessness but movements were restrained on account of the pain in the muscles. Usually there was some nausea, always anorexia. There was an acute-ness of hearing, slight continued noises adding to one's irritability. The eyes were closed to avoid the light and rest the aching muscles, so that a patient seemed to sleep when he did not. The pain about the eyes was so characteristic that after a first

attack one could tell by a quick jumping movement of the eyes if a second attack was impending.

The bodily functions were always interfered with. There was costiveness, scanty flow of urine, dry tongue, fauces and skin. While without excessive thirst for plain water, there was a craving for ice, acidulated and mineral waters, the colder the better. The tongue was coated white which soon cleaned off, or became brownish and assumed a typhoid appearance if the fever was to be of some days duration. There was or was not an erythematous eruption on the skin. If so, it was general or was limited to the forearms and legs, and was of a few hours duration or lasted several days. If present at all it was found about the flexures, the elbows almost certainly, next the wrists. In some cases itching was severe, in others there was none at all. The pulse rate might rise only ten beats with a temperature of 103.5 degrees Fah., regular, though full and bounding from a relaxed condition of the arterial walls. Its usual rate was nearer one hundred and twenty and rarely exceeded this, with more or less tension, but not of an inflammatory character, and this with a temperature of 102 degrees or as high as 104.5 degrees. The respiration was quickened as the pulse rate rose, with frequent deep breaths of a sighing character. Sleep was never deep or refreshing and even when muscular pain was sufficiently numbed by exhaustion to allow the sufferer to sink into slumber there was much restlessness, as no position he could get into seemed to fit the bed. Few were delirious, and delirium never occurred with a slow strong pulse, but bad dreams amounting to nightmares were common. Night brought some relief to the tired ears and eyes, for irritating noises ceased, and the eyes could be kept open without fear of light.

The most annoying and persistent symptom of a severe attack was the great depression accompanying it. The patient always hoped to be better in the morning, and if after a sleepless day and restless night, he found the symptoms persist, the feeling of disappointment was profound and led to a conviction in his mind of a fatal termination.

The milder cases of the disease lasted from three to four

days, the severer ones from ten days to a fortnight, my own running eight days. Vertigo existed on getting up from bed, and persisted two or three days after resuming duty which I did on the ninth day. I also noticed an impairment of vision, and later a decided thinning of the hair.

The prognosis was favorable. Out of several hundred cases, of which I was cognizant, there were no fatal terminations, but several cases had to be invalided to Yokohama or Mare Island, on account of persistent anemia, or failure to regain strength, despite being under the best conditions as regards surroundings and diet, and under continued tonic treatment. This anemia was temporary in character, for as far as I heard they recovered health in their changed localities. In other cases, phthisis, which had probably been latent, developed quickly after a severe attack.

As far as my experience went I did not regard this fever as contagious. All had it but all were exposed to the same influences. It was rarely seen on board ship, and then was confined to the individual, who had been on shore. A part of the marine guard of the Flagship *Baltimore* was sent ashore to help guard the Station. They remained in the barracks for five days and returned to the ship on the arrival of the first marine battalion from the United States which took station there. They were all in good health when they left the ship, remained so on shore, and seemingly were on their return aboard. They were well cared for ashore, had clean, comfortable barracks, were not drilled in the sun, nor exposed on post, not subjected to any unusual conditions, nor allowed to leave the station to visit the Filipino houses in Cavite. The day after their return to the ship, the sixth from the day of leaving, they commenced to be taken down with this disease, and in a few days twenty of the twenty-four who had been ashore had more or less severe cases of it, differing in symptoms. They mixed freely with the members of the guard who had not gone ashore, and with the ship's company, but not a case developed other than those contracted ashore. In the cases of officers going ashore from the ships for a few hours, or of men sent to the store houses for supplies during the day, although they were brought into contact with the sick, the disease was not con-

tracted. Residence there, sleeping, eating or drinking was required. Walks in the hot sun, by people from the ships who neither ate nor drank ashore did not produce it, nor was it caused by even the higher artificial temperature on board ship than the natural temperature ashore. On the arrival of a battalion of marines at the Station from home, the greatest care was taken of the men, yet in a few days they came down by the dozens until the whole lot had been affected, and this happened after the arrival of each battalion. After this although there were recurrent attacks in the cases of individuals, the battalion was regarded as acclimatized.

The existing cause of this disease had not been scientifically demonstrated. The older foreign residents there, as is usual in tropical countries, regard the cause as an emanation from the soil, or as existing in the atmosphere; have their houses of two stories with all living rooms on the second floor, and boil their drinking water. While the houses of the natives are not of two stories, they are built on supports several feet from the ground so there can be a full sweep of air under them. They stated that the fever was most prevalent after the commencement of the rainy season. I was advised by the old residents not to walk out at any time after a shower while the strong vapor was arising as it was pretty sure to produce an attack. The mosquito is numerous, both the day and night species, and very savage in its attacks, so that sleep is impossible outside of a net. Flies and fleas are also numerous. The Commission for the study of tropical diseases sent out by the John Hopkins University made blood examinations in several cases, but did not arrive at a satisfactory conclusion. Neither microbe, bacillus, nor plasmodium was isolated. The Commission was there at a bad time when there were not any fresh arrivals, and the cases they saw were recurrent, or had been under treatment some days. The most of them had been taking quinine, the remittent features in their cases having been marked. None of the cases they saw were considered typical. Blood examinations made by our own medical officers have yielded negative results.

Many cases resembled remittent fever, many dengue, many thermic fever or calentura, the number of these varying at dif-

ferent periods, and according to the prominence of the symptoms they received different names, but there was a general resemblance in the type. There was always a morning remission of the fever, the dengue eruption was absent in very many, and in most the continuance was longer than in calentura. There was some undeniable remittent fever, and much undoubted dengue. The first thirty or more cases I saw seemed all remittent, and in later similar cases plasmodium was found, the microscope not being in use with the first. Many of these came from exposure in other ports, some claiming to have similarly suffered while in the Cuban campaign. It was very noticeable that all cases of sick sent from ships with whatever disease to the hospital, would contract a case of fever during their stay, generally within a week of their going ashore. This was so well known that it was a common objection to going on the part of patients to be sent there from the ships. The hospital ward was in the second story of a large building used as a store-house below. The medical officers of the army had the same experience while they occupied the Station in a low building used as a hospital built directly on the ground, and which the Spaniards used as sick quarters. They thought it was because it was on the ground and shut in on one side by a high wall which interfered with ventilation. The Naval Hospital was high above the ground and favorably placed for the free sweep of the northeast and southwest monsoons, was free from germs as it had not been used before as quarters or in the Spanish days, and yet the fever was just as sure to attack a patient in it as in the low army hospital.

The surface conditions of the soil in and about Cavite were good, except as to the disposal of excreta and refuse. The surface of the ground is about two feet from high tide, and as the soil is very porous and the peninsula on which the town and Station are situated is very narrow, the subsoil water is influenced thereby, the shallow wells of semi-brackish water almost filling when the tide is very high. There were no springs, pools, nor stagnant water, and on account of its porosity water sinks in very rapidly after a rain, though it becomes saturated during the rainy season. After the place had been thoroughly cleaved by

our troops the fever continued as before. The men were made to drink boiled or distilled water when under surveillance. No doubt many of them did not confine themselves to that, as tanks of water, brought down by boats from the Manila supply pipes stand about the grounds of the Station there being no local water supply. They were not allowed to go into Cavite at first, but later, when they were, the fever was neither more frequent nor severe. It is apparent that the cause existed in the Station as well as outside, and that it was persistent, but the cause itself and the mode of attack was not apparent. The question arises is this a specific fever taking on characteristics of other forms that may at the time be also present, as dengue or malaria, or is it an irregular form of either of these diseases, the exceptions rather than the regular cases seeming to form the type? The probabilities seem to me to point to its being a modified form of dengue rather than malaria, its symptoms accentuated or suppressed according to unusual circumstances. The contagion which was regarded by Manson as a characteristic of dengue was not evident, and the eruption, also characteristic, was absent in most of the cases, but the general type was more characteristic of dengue than malaria, though it has not been sufficiently studied with the microscope to exclude malaria as a primal cause instead of simply an accidental presence, and until this has been done this question cannot be conclusively answered.

In the treatment of the disease quinine did not seem to have a specific effect, except when the remittent character was marked. Then it seemed very effective combined with opium in the form of Dover's powder, which also relieved the pain and softened the skin. In other cases while it would control the height of the fever it did not seem to shorten its course. Medication did not seem to surely do that. Cases that seemed of equal severity in initial symptoms would differ several days in duration under the same treatment. In general treatment was symptomatic. Calomel* or blue mass by preference for the sluggish bowels, aconite for high pulse and delirium, ice and alcohol sponge baths or the tub for temperature and restlessness and other medicines as the symptoms demanded. The coal tar preparations which were used at

first for temperature and pain were soon abandoned, as they seemed to add to the general depression, which in itself was already sufficient to call for many encouraging assurances to the patient from physicians and nurses that he would surely recover.

In speaking of baths I wish to state that not only in this, but in all forms of fever baths were most freely used, and in all cases were of most signal utility. At no time did I see any bad effects, and I regarded them as the principal weapon in combatting fevers. Unless ice and alcohol could be obtained for frequent sponge baths, the tub alone was used, and the sea water preferred. The atmosphere is so loaded with moisture that evaporation from sponge baths was very limited, the lowering of the temperature slight, the return to the maximum elevation speedy, necessitating frequent applications which became annoying to the patient, whereas in the tub the heat could be soaked from the body. Sea water could be obtained at a temperature of eighty-three degrees Fah., and in forty or forty-five minutes the temperature of the patient would fall to about 100 degrees, and usually remain down several hours. When on rising it reached 102 degrees the bath was repeated day or night. When ice could be obtained, if a lower temperature of water was desired it was added to the bath, but that was not often necessary. After giving a sponge bath, a sheet wet with ice water was often wrapped about the patient; and a blanket about that. This generally produced a free perspiration, calmed the delirium, quieted the nerves, and produced a healthful sleep. Usually, however, it required the tub and a good soaking to accomplish the wished for result. Many patients would protest against the tub bath at first, but its action for good was so marked that the most strenuous objector was soon converted, and would often ask for a bath before the temperature was high enough to necessitate it. Where the patient was strong enough to stand it, the salt water shower was effective and a more pleasant form of bath, but for general use the tub was of the most advantage.

THE MEDICAL OFFICER IN CAMPAIGN.

By MAJOR P. J. H. FARRELL,

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THE Military Surgeon should be as much interested in that part of his duty that does not necessarily pertain to the practice of medicine, as he is in his medical work. It has been truly said that "The Military Officer in uniform with the rank of Lieutenant, Captain, Major, Colonel and General, and yet who is a doctor, would seem to the civilian, ignorant of the matter to be a strange anomaly." But let it be definitely understood that the medical officer is a soldier as well as a surgeon. He is not a make-believe officer parading in borrowed plumes, seeking to hide his professional identity, under distinctly military titles. The medical man who has no martial or military feeling is out of place in the army or navy. He cannot assimilate with those around him, he is always "playing off side," as it were. This is no position for the medical man who is only a clinician, for many men who are equally studious and scientific, combine medical skill with the martial feeling of the soldier. It is very important and at all times necessary that he bear in mind, his special function and most important duty, the very reason of his being,—to prevent disease, heal the sick and restore the injured. This is not incongruous with military titles as some may think. The ordnance officer makes the gun and ammunition, the engineer builds a bridge or surveys a road, the commissary officer supplies food, the quartermaster clothing and transportation, the paymaster carries the treasury, they are non-combatants as a rule and are seldom on the firing line, but military rank is as necessary in these staff positions as it is essential in the medical corps and the line. The medical officer protects and keeps in con-

dition all of them, as well as "the man behind the gun." Scholastic honors, whatever the exceptions indicate, widen not narrow the faculty. The medical officer in the field can readily bring about a feeling of comradeship with his brother officers. An intelligent knowledge of the military side of his duties will be noted and appreciated by the line officers. It is essential that he learn the principles of military drill, if he is not to blunder and look absurd when in command of his detachment of the hospital corps. He cannot correct errors if he is not familiar with the principles upon which the drill is based. He will certainly add to the respect in which he is held as well as to his own efficiency by a clear knowledge of what is and what is not required of the soldier. At the mess table or around the camp fire, he can intelligently take part in the discussions of his brother officers. He must learn to obey without hesitation,—those who would learn to command must first learn to obey well. Discipline is that excellent system by which every man does all that is required of him at the right time and in the proper place. Fondness for the service is necessary for the successful medical officer, otherwise in time of war he will be found dissatisfied and complaining of the inconvenience and hardships that are inseparable from a campaign and will spread that worst of all ailments, that affect new troops and known to us as nostalgia but in the vernacular as "cold feet." The medical officer that does not learn the company drill, the battalion and regimental exercises, is wrongly placed in the army. He lacks military ambition and is neither a good officer nor as good a doctor as his brother who does, for the very reason that he fails to get the same confidence and respect from his comrades.

He will notice the new recruit to whom discipline is irksome and whose very awkwardness will, perhaps cause some injury that he will be called upon to treat, but when he can see the soldier in peril and observe the steady courage and uncomplaining endurance of well disciplined troops, when he finds a body of men depending on him and on whom he depends, his heart will go out to his comrades.

Any nickname should be suppressed with dignity and firmness. During our late war it was usual in the volunteer regiments

for all officers to have nicknames; discipline and efficiency are thus impaired. The medical officer should learn all about his camp, and unless military exigencies prevent, his commanding officer will usually accept his advice in regard to the camp site, his bedding, his food and its preparation, see that all food is sound and healthy, well cooked and cleanly served, and that the men wash their face and hands thoroughly before sitting down to mess. I have often noted the great care and attention given to preparing the food and boiling the drinking water and then after all this care the men were allowed to come from the hospital wards where they had been visiting typhoid, diarrhoea or dysentery cases, the sinks, the closets, or from fatigue with their hands in excellent condition to infect the food, and keep up the record for dysentery, typhoid, etc. The enforcement of this simple precaution cut down the sick list sixty per cent in thirty days in one body of troops that I joined. He must see that sanitary precautions are used around sinks and closets and that no offal is allowed to accumulate about the cook houses, no stagnant water or other pestilent breeding spots allowed to remain about the camp, he must see to the water supply and the drainage, the proper ventilation of tents and bedding, see that all the men are clean and bathe as frequently as circumstances will permit. These are comparatively simple matters in barracks and take little time, but the medical officer will find that in a campaign, he never has a minute to spare if he is going to keep down epidemics of dysentery, diarrhoea, typhoid and malaria. He should carefully study and become proficient in knowing how to cook the army ration, a medical officer that finds fault with the food and cooks and cannot show how to correct the fault is indeed a sorry sight. A medical officer's duties on the battlefield are not without danger; the records of the Civil War, the Spanish, Filipino, Chinese and Boer wars show that death in the ranks of the medical officers was quite equal to that of the line officers in proportion to their number. The first man in our army wounded by Spaniards in the Philippines was a member of the hospital corps, the first officer killed in the Filipino war was a medical officer. The medical officer is called upon to show energy and ingenuity more fre-

quently, I think than any other officer in the army. The transportation of the sick and wounded, particularly with a flying column, is always one of great responsibility and moment. I remember the experience of a medical officer a few years ago. The General in command found at nightfall that his command was placed at very great disadvantage when the battle that was inevitable should be resumed at dawn the following day. He called a council of war. It was considered necessary to move out of the position under cover of night. There was but one objection,—moving the wounded, of which there were many. The surgeon was asked if he could devise any method by which the wounded could be expeditiously moved that night. Although his only ambulances were some small two-wheel carts impressed into the service, he informed the commanding officer that all the wounded had been attended to and could be safely, and as rapidly moved as the rest of the command. The surgeon received a very high compliment in the report of his superior officer, for his splendid work in moving the disabled without delaying or embarrassing the command. The medical officer in the field should be a soldier and a surgeon too. Medical officers have frequently been called upon to take command of troops on the field of battle. We have the example of that brilliant medical officer and gallant soldier now in command of the only part of our army that is engaged in actual war, on the Island of Mindanao, whose record as a medical officer was a fitting forerunner to his splendid record as a general officer of the line. I recall an incident where an outpost was cut off, the country was swarming with the enemy and it appeared as if immediate death would be the reward of any attempt to go for help. When a volunteer was called for to go through the enemy's lines and bring out reinforcements, the medical officer asked to be allowed to make the attempt to get through, stating that as he was seriously wounded in the right arm he was of little assistance and the strength of the outpost would not be reduced by his absence; his offer was accepted and at nightfall he went over the trench and arrived at the next post, twelve miles away at daylight, and again wounded in the leg. He was a military medical officer in campaign,—“a surgeon and a soldier too.”

A CASE OF STOKES-ADAMS DISEASE.

BY CAPTAIN JAMES BREW,

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ON January 5th, 1904, I was called to see Mr. F. G., a white male, native of Germany, aged 32 years, occupation brewer, whom I found suffering from an attack of influenza.

Physical Condition: Brunette with blue eyes, muscular system well developed, strong physique and general condition aside from present affection good. No deformity or peculiarities.

Social Condition: Widower for two years.

Habits: Uses tobacco, smokes pipe several times a day and cigar occasionally at night. Drinks his allowance of beer while at work which is ten glasses daily and occasionally at night after work. Rarely drinks wine or whisky.

Past History: During childhood had measles, scarlet fever, whooping cough and chicken-pox. At the age of fourteen he came to the United States and since has enjoyed good health with the exception of an attack of acute articular rheumatism four years ago which invalidated him for four months, so severe was the attack that he had to be lifted on a sheet for the reason of the great amount of pain attending moving. After recovery from this attack has only suffered occasional discomforture and that of short duration, none of these recurrences were of sufficient severity to incapacitate him for work.

Gives history of two attacks of specific urethritis, the last attack some two years ago. Denies ever having syphilis but underwent treatment for "herpes" about four years ago. Every spring he finds it necessary to take some "blood medicine" and claims that his "kidneys are weak from one of his gonorrhoeal infections."

Physical Condition at Examination: Had a chill the evening previous to the day I saw him, temperature 104°F., pulse 112, respiration 22. Tongue furred and badly coated, face flushed, eyes injected, lacrymation increased, acute coryza and anorexia. Complains of great pain and soreness over entire body, particularly in the lower limbs.

Physical Examination: Percussion and auscultation of the heart, lungs, liver and spleen denoted nothing of any consequent abnormality.

Diagnosis: Influenza.

Treatment: Calomel, grs. 3; sodii bicarbonate, grs. 10; ext. hyoscyamus, gr. 1, made into three capsules and directed to be given half hour apart and

to be followed in four hours by magnesia sulphate, $\frac{3}{4}$ ss. Also a capsule, each containing, sodii salicylate, from oil of wintergreen, grs. 4; phenacetine, grs. 2; caffeine citrate, gr. $\frac{1}{2}$ and given every four hours. Hot mustard foot bath ordered given the patient; to be given only liquids and those hot and to remain in bed.

His recovery was prompt and uneventful. During his convalescence he was given a tonic containing iron, quinine and strychnia in tincture gentian compound. On the fifth day of his illness his temperature and pulse were normal and aside from feeling a little weak was well. I insisted that he remain in doors for at least a week longer, an injunction which I have my serious doubts as to being obeyed in the absence of later developments.

Two days afterwards, or the seventh day from his first indisposition I was summoned to his bedside again. I found patient in bed between red blankets and upon inquiry was told that his rheumatism had returned and that he had suffered severe pain in his right ankle during the past twenty-four hours. Examination of the affected joint proved it to be very tender to touch but absence of any inflammatory symptoms. Temperature (oral) 101.2°F. ; pulse 104; respiration 20. Secretions normal as to quantity and frequency. I ordered the joint bathed in water as hot as could be borne, flannel bandage applied and hot water bag kept to the part. Calomel was given as before and followed by magnesia sulphate. A prescription containing sodii salicylate, oil wintergreen, grs. 10 to the drachm of essence of pepsin this to be given every two hours, and an alkaline diuretic containing citrate of potash and bicarbonate of soda in peppermint water. Diet restricted to liquids. A professional graduate nurse was called and placed in charge of the patient. That afternoon at 3.30 p. m., she called me over the phone and reported temperature 103°F. , pulse 118, respiration 20 and pain somewhat relieved. At my visit the next morning was told that my patient had spent a restless and sleepless night and complained of pain being very severe. Temperature this morning 103°F. , pulse 118 and respiration 20.

Urinalysis: Quantity in 24 hours 45 oz.; Reaction, acid; color, brownish-red; no albumen, sugar or casts; no pus, blood or bile. There was present in increased quantity uric acid crystals. Specific gravity 1020.

Blood Examination: Red blood cells (Thoma-Zeiss), 4,250,000; white blood cells, 7,200.

For the next four days there was no appreciable change in the condition of the patient. The salicylates had to be discontinued and salicin in ten grain doses was substituted, tablets of strychnia sulph, gr. $\frac{1}{30}$ were ordered every four hours. For the pain which had increased in severity we gave morphine gr. $\frac{1}{4}$, atropine sulphate, gr. $\frac{1}{160}$ hypodermatically every eight or ten hours as indicated. The left knee had by this time began to give trouble and the same treatment as given locally before was instituted with the addition of an ointment containing salicylic acid, ol. terebinthinæ and adipis was applied to both joints.

The pulse wave as recorded on the chart showed a gradually increasing rate with a gradually decreasing temperature. I again made a thorough and complete examination of the chest, particularly of the heart, and was unable to detect any abnormality. The pulse at this time was 124 beats to the minute, of good character and regular. Tincture of digitalis was given in ten minim doses to note its effect on the pulse rate but it did not have any appreciable effect.

Not satisfied with the condition and progress which my patient was making I asked for consultation, this was granted and the choice of consultant was left with me. On the same afternoon I had Dr. William Bailey to see the case. He made a careful and thorough examination of his condition, interrogated him as to his past physical history and condition; his conclusions were acute articular rheumatism, with a myocarditis complicating, little if any dilatation. His prognosis was favorable provided the heart could hold out under the present strain. He was positive that there was no valvular disease. No change of treatment was advised.

Two days later there being no improvement I decided on a different line of treatment. I prescribed hydrargyri iodidi rubri, gr. $\frac{1}{4}$; potassi iodidi, grs. xv to the drachm of essence of pepsin. The tonic containing iron, quinine and strychnine was continued. On the twenty-first day or two days later for the first time my patient began to show unmistakable signs of improvement; not positive as to whether to attribute the change for the better to the change of treatment, but willing to give it the benefit of the doubt, I added to his treatment an additional two minims of the saturated solution of potassium iodidum and to increase it one drop a dose, or three drops a day. On the twenty-fourth day he was so much improved that I told him he could sit up out of bed in a few days if his improvement continued. At this time his temperature was normal, respiration normal, his diet had been gradually increased but all meats prohibited. Despite his otherwise satisfactory condition and in face of all treatment, the pulse rate continued from 115 to 118 beats per minute. On the afternoon of this same day a brother of the patient who was at this time under treatment for a neuritis called at my office and during his visit remarked that his brother had had a bad spell after I had left. I inquired into the nature of it but all he could tell me was that he had had some kind of a fainting spell which lasted only a few minutes. Trusting to their judgment to summon me should any serious trouble ensue I passed the statement off as inconsequential. I will here state that the nurse had been dispensed with as his condition was so much improved as not to necessitate her services. A specimen of urine which had been obtained during the morning was subjected to a urine analysis, both chemical and microscopical, and aside from uric acid crystals was what would be considered as normal, specific gravity was 1015, no albumen or sugar, quantity passed in the twenty-four hours, 52 oz.

On the following morning I visited the patient to ascertain just what the attack of the day before had amounted to and what his condition was. His sister met me at the door and remarked that her brother's condition was not so satisfactory, that he had spent a very bad night, having convulsions every half hour or hour. I asked why I had not been called, they did not think it necessary as they soon wore off and he felt all right afterwards. I would beg to call your attention to the fact that it was the day previous when his condition was so satisfactory as to justify me, as I thought, to assure him that he would be allowed to get up in a few days.

I will not attempt to paint for you the clinical picture which presented itself at the bedside, one must see to appreciate, but once seen I do not think it would be forgotten. His face, body and extremities were whiter than the whitest marble, expression anxious, pupils widely dilated, lips livid, finger tips slightly cyanotic, skin dry and cold. I placed my thermometer in his mouth and it registered 95.8°F., no liquids had been taken for several hours. I then took rectal temperature which was 96.2°F. His pulse, taken at the wrist, radial artery, was 22 per minute. I placed my stethoscope over the heart and found it to be the same, there was no semi-beat or a suspicion of muscular contractions during the interval of the beat. While making my examination his face grew suddenly anxious, there was a slight movement of the head backward, and he begged that I hold him as he felt one of his attacks coming on. I extended my hand which he grasped and clutched firmly, there was a convulsive wave which passed as I thought up the arms and then over the body surface and finally down the extremities. I studied his condition carefully; pupils were dilated as before and eyes set in head; with my free hand on his facial artery at the angle of the jaw I could detect no change in the pulse rate; his breathing soon became of the Cheyne-Stokes character, the cycle of which lasted about one minute and then became stertorous in character. There was no change in the pallor, no suspicion of a flush. In about two and one half minutes the condition had subsided and he was normal. I asked him how he could tell when an attack was coming on as he had. He answered that his head began to swim and he grew blind. I asked him how he felt, and he answered very much exhausted. He claimed to not know anything which occurred during the seizure. It afterwards became necessary to place a gag between his teeth to prevent his biting his tongue. I remained at his bedside with the idea of witnessing another seizure; in about fourteen minutes from the time the other had subsided there was another, exactly the same in character and particular. They so continued, occurring or recurring, every fifteen or thirty minutes until his death, which was at 10:45 P.M. of the same day, almost exactly thirty-six hours after the onset of the first convulsion. During the interval from the time of my first visit in the morning and his death that evening I saw him seven times, remaining on an average of twenty minutes at each visit; at no time did I find his pulse rate over 22 and at three different countings

it was 16, 18, and 20 respectively. His temperature, per rectum, at one time registered 96.2° F. but soon dropped to 95.6° F and the last recorded was 95.3° F.

To recapitulate,—My first attention to the patient was for influenza, which lasted five days and from which he made a prompt and satisfactory recovery. After sitting up out of bed for two days, but still confined to his room, he took to his bed again with acute articular rheumatism, of moderate severity and which lasted some fourteen days; he was again on the road to recovery and was allowed to sit up in bed and as stated heretofore I gave him assurance that he would in a few day be able to get out of bed. This assurance was given only after a thorough physical examination and at that examination I was unable to detect any abnormality which I think would have given any apprehension of the impending danger. A few hours after giving this assurance, this peculiar condition was ushered in and in thirty-six hours my patient was a corpse.

The treatment given during the period of this later condition was purely symptomatic and consisted of oxygen by inhalation; strychnia sulph., morphine and atropine in combination, and nitroglycerine by hypo.; sodii bromidi and chloral hydrate per rectum; there was absolutely no response from these remedies. Amyl nitrite was given by inhalation both before and after the seizures which did give some relief after the convulsion passed off. I last saw him about one hour before his death when his pulse was eighteen and somewhat weaker. I left the patient to make another call, intending to return as soon as possible; unfortunately I arrived a few minutes after his death.

Reference to text books for information as to the cause of the demise gave little information. Osler in his last edition, p. 760 makes brief mention of this disease, if so it can be called. Anders in his last edition under chapter on Bradycardia and Brachycardia writes at greater length on the slow pulse, but the slow pulse does not always, in the vast majority of cases mean danger. Writing on fatty degeneration of the heart, he gives under Myocarditis, a description which very closely resembles the condition which my patient presented, but does not assign to it a separate designation. Babcock's book on Diseases of the Heart and Arter-

ial System, devotes some nine pages to a description of Stokes-Adams disease and the case which I am reporting to you presented all the features given.

The etiology and pathology of this disease, if you please to so call it, is as yet uncertain and incomplete. Babcock prefaces his remarks by saying; "a very remarkable and obscure complex of symptoms, which consists in a paroxysmal intensification of an already existing bradycardia together with a vertigo or syncope and epileptiform seizures. Boyer's collection of twenty-one cases, states that in only two cases did it occur under fifty years. Jacquet in his research found fifteen reported cases in which the age was below thirty years.

Stokes attributes the disease to degeneration of the heart; Charcot to disease of the medulla; Huchard to arterio-sclerosis, especially of the coronary arteries.

Babcock again says, "On the other hand, fatal cases have been observed in which searching post-mortem investigation has failed to reveal any lesion capable of causing symptoms, and indeed any recognizable changes that could be held responsible for the death of the patients."

Hoffman's patient was a woman of twenty-three, without any clinical signs of cardiac or other organic disease, but with a severe anemia. Cases are cited which are supposed to be dependent on syphilis, anemia, constipation, indiscretions in diet, disturbance of digestion, etc. As in all diseases where we are in doubt and at a loss for a sufficient cause, any condition which may exist at the time, or which preceded the attack, has been given as an etiological factor.

Babcock summarizes, "that the pathogenesis is uncertain, but we must now recognize two great groups; (1) in which the age of the individual is advanced and there are structural changes of the heart and vascular system, or definite lesions in the central nervous system; (2) Cases occurring in younger persons sometimes with clinical evidences of cardiac disease, sometimes without any demonstrable lesions either before or after death, and which appear to depend upon some obscure disturbance of the nervous system, as the brain, or upon an interference with normal cardiac contractions."

Hoffman ascribes the symptoms to an interference with the ability of the heart muscle fibres to respond to irritation or to conduct the impulses to contraction from the auricles to the ventricles.

Of the prognosis all seem of the one opinion, and which I from experience can heartily endorse, "it is exceedingly grave."

As the treatment is purely and entirely symptomatic, it will be attended by varying results. Diffusible stimulants, as ammonia, camphor, ether injections, nitroglycerine, morphine, digitalis, and free elimination from the kidneys and bowels.

In my own case as reported, conclusions are speculative, as an autopsy was not permitted. I derive my conclusions from the clinical aspect of the case. There was a myocarditis. His recovery from his attack of influenza was prompt. The rheumatism was not so amenable to the recognized treatment usually given in this trouble, in fact he did not get relief until the salicylates had been discontinued and mercury and iodide of potash substituted; in fact he could not tolerate the salicylates. Recall the fact that the pain from his rheumatism was most severe during the night and that the joints of the extremities were the ones involved. He himself had found it necessary to take "blood medicine every spring," coupled with the facts of a life of excesses, both sexual and alcoholic; his having contracted venereal diseases other than syphilis, but his having once been treated by a physician for "herpes." I admit that I found no other evidences of the disease, but at this stage that would not negative my conclusions. I am of the opinion that my patient had at sometime in his life contracted syphilis in some way, either mediate or immediate, that this infection had been unrecognized, and that this syphilis played a factor in the disease which caused his death, and that that disease was the so-named Stokes-Adams disease. Jaquet in his report of cases came to the same conclusion in five of those collected.

AN HOUR WITH DR. THOMAS TROTTER, PHYSICIAN
TO THE FLEET,—EXTRACTS FROM AN ADDRESS—

BY THE LATE JOHN MILLS BROWNE,

SURGEON GENERAL OF THE UNITED STATES NAVY.

I CONSIDER it opportune to invite your attention to the sanitary condition actual and experienced, of the English Royal Navy, nearly a century ago, and to the multiform industry of a single individual, in the acquisition of the knowledge of disease, of its cure and prevention, and of the enhancement of the surroundings of the men of the sea.

Hence the presentation of Dr. Thomas Trotter, Physician to the Fleet, who introduced many improvements into the medical discipline of the Navy, whose indefatigable endeavors to mitigate the pernicious effects of scurvy, and eminent success in repressing the contagious or putrid fever and whose general work of administration is so clearly, tersely and delightfully set forth in his "*Medicina Nautica*." There is a genuineness, a charming kindliness and simplicity in his mode of expression that keeps the attention constantly alive. His devotion to duty, patient effort, pursuit of the practical, and true directness of purpose mark his conclusions as possessed of no other purpose than honest conviction. New duties and responsibilities which demanded independence of thought and self reliance of character, were performed in a manner, which made him the acknowledged authority.

His industry and usefulness, would have awarded to him the motto *nulla dies sine linea*. This in its essential outline is his character as indicated by the *Medicina Nautica*. In the introduction to *Medicina Nautica* the reader is informed that the volume contains "the history of health for three years in a fleet that has performed the most brilliant service for Great Britain," that "to alleviate the miseries of human nature, it is necessary

to probe them to the bottom, and trace them to their source, but to relieve effectually the distresses of a particular class of men, as the British seamen, we must associate with the character and keep aloof from none of its frailties" and that "the studies of a naval physician are something like the soldier's prayers, 'they must be said when and where he can.' " In Discourse I, he speaks of medicine as a hand-maid to the art of war, whose assistance has been particularly observed in modern wars. He mentions his early introduction to the Navy: his passing through the gradations of Mate, Surgeon and Physician, to his promotion as Physician to the Fleet: of the time when in opinion he stood alone, and when assuming all responsibility he acted with promptitude and decision, for to use his own language "the progress of disease will not wait the return of post, nor can forms of office stay the hand of death." He found the supply of medicines to claim an immediate correction from the Medical Boards, being interwoven with the pay and the source of many abuses, which could only be prevented by changing the mode of payment and allowing the medicines at the expense of the Government. After the return of the fleet to port in June, 1794, a very desirable change was effected in the necessaries by rejecting useless articles that soon spoiled and others that consumed money and were of little use. More tea was procured "which of all articles of diet is most relished by our sick."

As much of his professional labors had been directed to the reformation and improvement of Royal Hospitals, when appointed Physician to the Fleet, he considered it his duty to submit to officers high in command, what he conceived to be deficiencies in these institutions. As a consequence the Commander-in-Chief ordered certain Admirals and Captains to survey Haslar Hospital. This duty was performed with great patience and attention and some very material changes took place. As a word of parting he asks if a "medical library would not be a valuable appendage to a hospital," and again "might not the grounds around Haslar be advantageously laid out in orchards and gardens for the use of the sick?" "Amidst other deficiencies "I think a suit of baths one of the greatest. The situation of Has-

lar and Portsmouth Hospitals are convenient for their construction; they ought to be made for different temperatures and joined to a magnificent national charity, the baths of Haslar would become as famous as those of Baiae, in the days of ancient Rome."

In Discourse II, he finds so many striking singularities in the character of the British seamen, that it becomes necessary for both officer and physician to become thoroughly acquainted with them, these peculiarities being the offspring of a sea-life. Growing eloquent he exclaims, "In a country like this, that owes her security to a naval force, we see a victory at sea celebrated above all others; it rouses the *amor patriæ* to the highest pitch of enthusiasm, and reminds a free people of their independence, for nature has decreed that this is our element."

After describing the follies and vices of a sailor, his eloquence is bestowed on his virtues: "In the hour of battle he has never left his officer to fight alone, and it remains a solitary fact in the history of war. If in his amours he is fickle, it is because he has no settled home to fix domestic attachments; in his friendships he is warm, sincere and untinctured with jealous views. The heaviest of metals as Sterke calls it, becomes as light as a feather in his hands. When he meets an old shipmate or acquaintance under distress, his charity makes no preliminary condition to its object, but yields to the impulse of an honest heart. His brevity is not prefaced by a common though affected harangue of assuring his friend he will divide with him his last guinea, but he gives him the whole of it, requires no security, and cheerfully returns to a hazardous, laborious employment for his own support. Were I ever to be reduced to the utmost poverty, I would shun the cold threshold of fashionable charity, to beg among seamen, where my afflictions would never be insulted by being asked through what follies or misfortunes I had been reduced to penury." Although great improvements had been made in articles of diet, yet alterations might be made with great advantage. The allowance of salt meat at sea was excessive and should be reduced one-third and its full value supplied in something else. The cheaper pickles would be very acceptable. Molasses being made general the oatmeal breakfast was made palatable. Cocoa

with sugar was supplied for breakfast in the West Indies, Capt. James Ferguson being the benevolent inventor of it.

To resist the effect of salted beef or pork, a quantity of onions was recommended to be given to every ship on going to sea, to mix with pea-soup, as it would be useful to prevent scurvy. Also it is wished a few sheep might be carried out for the sick, as "a little mutton broth is so nourishing under debility. Our officers have kindly shared their flock with the sick, but balk at their pig, alas they cannot afford it."

In the General Abstract of the State of Health in the Fleet from 1794 to 1795 it is stated that two very bad cases of contagious fever, were sent to Haslar Hospital from the *Russel*,—"the sick from this ship complained of the washing of decks so much during cold weather; it was performed no less than thrice a week and the poor fellows attributed their sickness to that cause. Certainly with great reason it might be considered as having materially assisted the effect of infection." In watching the progress of infection in tainted ships, he observed it constantly varied in clear and rainy weather. After a few days of wind and rain the cases always increased. The fact seemed to be accounted for in this manner: "During hard gales or heavy rains, the people when confined below, must breath a more impure atmosphere, which always may concentrate the contagious effluvia." In a general visit to the ships at Spithead, many facts were brought to Dr. Trotter which supported his former arguments against the practice of compelling the seamen to pay fifteen shillings for the cure of the venereal disease. "In some of the ships were men who undertook the cure of the disease, in all its stages, and had more than one or two patients in their care. Some consulted itinerant quacks, who flock to seaports, and had paid largely for their advice, while simple local complaints were converted into a confirmed lues. Several had withheld the knowledge of the disease till the most dangerous and excruciating symptoms supervened and thus became objects for an hospital." These facts were reported to the Board of Admiralty, which after making inquiry as to the amount of the sum in the Surgeon's pay, ordered an immediate stop to be put to the charge. and remuner-

ated the surgeons by an allowance of money proportioned to the complement in different rates. "Thus terminated a perquisite illiberal from its institution, inhuman in its practice, and impolitic from its continuance. It forms an epoch in naval improvements, for hundreds of seamen have annually fallen victims to its effects."

In 1795, owing to the severity of the winter great numbers of sheep and cattle perished and vegetation was everywhere destroyed. The price of provision rose, and beef and mutton could scarcely be procured. Dr. Trotter was early aware, that existing conditions, unless counteracted by other means, must soon produce scurvy, and therefore proposed to the Admiralty some alterations in diet, such as cocoa and sugar in lieu of butter cheese and oatmeal; or sugar or molasses mixed with oatmeal gruel; beer to be made double strength, with more hops to make it keep, and two quarts to be served instead of a gallon of small beer. No effectual change having taken place, in the victualling department, further statements were made to the Admiralty in effect that the disease was rapidly advancing. The hospitals were filling with scorbutics, and if assistance did not soon arrive there was danger that the fleet might be rendered inactive. This produced the desired effect, and now "the reader may smile at the idea of a Physician to the Fleet, attending the stalls of a vegetable market, or perambulating the country to calculate the produce; but it never appeared to me below the dignity of the profession: nor did I consider it a mean task to serve the salad with my own hands from the *Charon's* quarter-deck."

The article on Yellow Fever, begins by the mention of its appearance in Philadelphia in August, 1793. "During this awful visitation Dr. Rush appears like a saving angel arresting the arm of death. The practice of the Sydenham of America was broad and decisive in this fever. It was one of those opportunities which nature now and then presents as a field for the display of some superior talents to some favored genius. Who would not travel through this vale of tears, amidst blast of contagions to share the well earned fame of Dr. Rush!" In January, 1795, the Physician to the Fleet was ordered to inspect the *Cum-*

berland, just arrived from the *Noire*, when he found one hundred and twenty men ill of catarrh. In addition to extra warm clothing, directions were given to abstain from washing the decks, and to substitute scraping and rubbing the decks with dry sand, with the result that the sick decreased from this time.

In the postscript to *Medicina Nautica*, a short advice is offered to the younger members of the profession in the Navy. "As study and diligence lead to preferment in every department of life so in our line they have their rewards. We fill a most important station in the service of our country: nay, of much more importance than we can expect credit for, because many of our best actions must sleep with ourselves, as medical abilities are not to be appreciated by common observers. Yet this very circumstance leads to exertion; for it keeps alive the spirit of perseverance from the hope that merit will at last be discerned, and meet with success." Here we have Dr. Thomas Trotter, Physician to the Fleet, the best representative of the Naval Hygiene of the age. To make the nearest approach to that perfection to which sanitation could raise itself, kindled all his enthusiasm and inspired him with the kind of devotion, which made him desire to live in the complete performance of duty. It has been aptly said, that "to have served his own generation, whether in a higher or lower sphere, is a glorious description of any man's life." He was ever active in human duty, fortunate in the fruition of noble efforts; not efforts in his own preferment, but in untiring labor for the public good.

In this age of inquiry, in this time of thought and research, when real, stable, solid facts, practically applied, are brought home to popular understanding we have accumulated evidence of the ignorance, indifference, and selfishness perpetrated to the injury of physical health, and to the necessity of fulfilling an educational want, in supplying a knowledge of the best methods of regulating the contact of material life with the surrounding physical objects, this as a preventative, but when disease is actual, then to hunt the cause and stamp it out.

Contemporary Comment.

A GERMAN VIEW OF THE MEDICAL WORK OF THE RUSSIAN ARMY IN MANCHURIA.

THE report of Staff Surgeon Schaefer, German medical attaché in Manchuria, states that the Russians found great difficulty in attending to the wounded in the immediate rear of the fighting line. It was thought inadvisable to set up dressing-stations in the trenches, as they might easily fall into the enemy's hands. Further in rear, in a country destitute of hills and woods, it was very difficult to find suitable spots for dressing stations, which were usually under fire. The surgeons, the bearers and likewise the injured men were not infrequently hit. During the fighting it was impossible to remove the wounded from the rifle-pits and trenches, and Kuropatkin expressly forbade any such attempts. The work of the surgeons at the fighting line and at the dressing-stations was thus greatly restricted, and it often happened that wounded men with only the most necessary dressings, or even without them, arrived at the principal station some distance in rear. A large number managed to creep away to such a refuge during pauses in the firing. Almost all fractures had received temporary dressings before reaching the principal station.

In consequence of the rapid accumulation of wounded and the overflow at the principal dressing-stations, especially during retreats, an enormous amount of work fell on the Medical Staff, the members of which were engaged for days and nights until quite exhausted. Operations had to be abandoned; first dressings, modifications of those hurriedly applied; splints and similar contrivances were the only feasible measures. At the principal dressing-station at Datschuanché, with 450 wounded, only forceps and scissors were used.

The conservative tendency of modern surgery was strikingly exemplified at all dressing-stations and hospitals. Of 63,346 wounded up to January, 1905, only 322 (five per cent.) were subjected to amputation. The most frequent operations were those for aneurysm, the removal of foreign bodies, and trephining. Among the most formidable cases were gutter-fractures of the skull. The importance of the dressing-pocket is emphasized by Schaefer; its contents were often used for the first dressing.

Traumatic diseases proper (erysipelas and tetanus) rarely occurred. On the other hand, frost-bite of one or more extremities, in the trenches, in the field, at the dressing-stations or during transport, was a serious complication.

In the majority of cases, gunshot injuries of bones healed without difficulty, but in a considerable number there was serious infection and even profuse suppuration, often due to the manner in which the wounds were plugged up by the dressings, which hindered the escape of secretion. It must be remembered that prevention of the wounded from falling into the hands of the enemy was a dominant idea in the Russian medical staff. The Russian army in general was well provided with bearers, carts and wagons; but when local conditions were unfavorable, slightly or even severely wounded men were carried day after day, hither and thither, in country carts without springs. By the time the hospitals were reached, high fever and inflammation had set in, and many such cases died after amputation. The difficulties were great even along the lines of communication. Severely wounded men might be conveyed during several days in goods-wagons, badly constructed, and defective in every respect. Certain lavishly supplied hospital trains, such as those provided by the Empress, exhibited a marked contrast to the miserable vehicles just described.

The losses in the Russian army were generally very great, in some portions as high as thirty, forty, or even seventy-five per cent. of the fighting strength. Wounds of the head were especially common, owing to the frequent use of earthworks. The proportion of killed to wounded was from one to four to one to six, the majority of the deaths being caused by large missiles.

Portions of shells and shrapnel cases of 14.5 calibre showed that the Japanese often used the heaviest artillery, fortress, siege and naval guns, some of which had been taken from the Russians. He notices the comparative slightness of many of the rifle bullet wounds especially of the lungs.

Such diseases as typhoid, typhus, dysentery, small-pox, anthrax and scurvy, were not very prevalent, but up to January, 1905, the number of sick admitted into hospitals in Manchuria (about 150,000), considerably exceeded the number of wounded (about 63,000). Nevertheless, Schaefer considers that the general sanitary condition was very good, owing to such favorable causes as the cold but dry climate, the sunshine, and the sufficient food and clothing of the Russian soldier.—*Jour. R.A.M.C.*

THE NAVY, ARMY AND AMBULANCE AT THE BRITISH MEDICAL ASSOCIATION, 1905.

THE work of the medico-military section of the British Medical Association at the 1905 meeting was continued on the second day by a paper by Lieutenant Colonel H. J. Barnes, R.A.M.C., Secretary of the St. Andrews Ambulance Association, who offered considerations for the establishment of ambulance wagon services provided and maintained by voluntary effort on the part of the community. He described the details of such a service as it already exists in Glasgow, and mentioned that in that city there had never been as much as a suggestion that the service should be carried on by the city authorities, or in other manner than it was. The efficiency of such a service in any large town was absolutely dependent on the telephone service. The average cost per "turn out" in the Glasgow service, including wages, uniforms, telephones, depreciation, insurance, horsing, storing, repairs, rent, and a proportion of the head office expenses of management, was 8s. 2d. It appeared from Lieutenant Colonel Barnes' paper that the fact that an ambulance wagon service was dependent on the voluntary support of the public was a guarantee that the best service possible would be given, as otherwise subscriptions would not be forthcoming. In a service supported out

of the rates there was a risk of it becoming too "official" and not sufficiently sensitive to criticism. Judging from the experience of Glasgow, and allowing for the greater acreage of London, it was reckoned that it would require at least 120 horse-drawn wagons to provide an efficient service for the metropolis; motor-driven ambulances might possibly reduce this number to 100. Surgeon-Lieutenant-Colonel H. W. Kiallmark, referring to London, said that the police were helpless in regard to ambulance service, and that the London County Council scheme would not work. Surgeon-Major Hutton mentioned that in Liverpool the public system under the municipal authority answered well. Captain W. P. Peake remarked that a voluntary service depended on charitable subscriptions, and these might fall off, with the result that the work would be disorganized. Lieutenant Colonel Barnes said that the voluntary system in Scotland had lasted for twenty-two years.

Dr. E. Lynn Jenkins, in a paper on the causation, varieties, and treatment of dysentery on active service, advocated, for the relief of pain and tenesmus in acute cases, the administration of the old fashioned enema of starch and opium. In regard to ipecacuanha, he considered it curtailed the course of the disease in many cases.

Major N. Faichnie, R. A. M. C. also contributed a paper on the same subject, and showed that impure water was not the only cause of dysentery. For acute cases he thought the best treatment was sulphate of soda or magnesia, given in as concentrated a form as possible and lukewarm. The earlier the treatment by the sulphates was commenced the greater the chance of its being successful. He emphasized the importance of diet, and described the successful use of digitalis. In his opinion, alcohol did not compare with digitalis as a cardiac tonic and stimulant. Surgeon-Lieutenant-Colonel H. W. Kiallmark referred to his experience of dysentery in the Crimea, where he relied upon rest, clothing and food rather than upon drugs. Surgeon-Lieutenant-Colonel G. S. Robinson said that the reported freedom of the Japanese armies from dysentery was attributed to sanitation, but it was more probably due to the simple diet of the Japanese soldier.

Surgeon-Lieutenant-Colonel G. S. Robinson read a paper on the feeding of the soldier on active service. He considered that the soldier who was well fed was not only in better bodily health and better able to resist disease, but he was more cheerful in difficulties, and therefore more equal to any strain he might be called upon to endure. That opinion, of course, applied more to the British soldier, accustomed to his solid midday meal, than to the Continental soldier. The Japanese authorities had seen the necessity of augmenting the food of their men whilst undergoing the hardships of active service. In regard to drinking water the first thing to be done was to let the soldier realize that the constant drinking of tepid and dirty water was not only injurious but failed to relieve thirst. Concerning cooking, the author maintained that a man was not a fully-trained soldier if he could not himself turn out something tasty in the way of a supper. In the early part of the South African war numbers of men on outpost duty were half starved by not knowing how to cook their ration of meat and flour. The time for serving meals was important, the author stating that on active service with a field hospital he directed the men to have tea immediately on arrival in camp; that took a short time to prepare, and owing to its stimulating effects the men were speedily rested, and after performing their duties were ready for dinner, which had meanwhile been got ready by the cooks. Breakfast was important, because no good work could be got out of men until they had had breakfast. Surgeon-Lieutenant-Colonel Robinson concluded by suggesting that a travelling oven should accompany each unit, and also a travelling bakery with each brigade.

Surgeon-Colonel P. B. Giles contributed a paper on the care of soldiers' feet, in which he pointed out that it was not generally recognized that the acridness of the secretions of the feet was the predominating factor in sore feet, and that those suffering from this trouble not only blistered easily, but acquired soft corns of a most intractable form. Rags, bandages, and felt were frequently vaunted over socks, but, in the author's experience, continental troops, in spite of constant progressive training in marching, suffered a great deal more from foot troubles when on

manoeuvres than British troops did. Short boots caused hammer-toe, blisters and corns arose from too wide boots, and bunions and over-lapping phalanges were created by boots with pointed toes. Therefore, given proper boots and socks, very little special treatment was required. Routine washing of the feet, followed by pickling in a solution of salt, and boracic acid, was far more advantageous than ointments or grease of any kind; because grease, even when well fortified with antiseptics, had a tendency at the heat of the body to ferment, and to create the very mischief they were used to prevent.

Major G. S. Crawford, R.A.M.C. communicated a paper also on the care of soldiers' feet, in which he declared that much attention was paid to the fitting and care of tunics and belts and the cutting of the men's hair, but very little attention was devoted to the fitting of boots and socks and the trimming of men's toe-nails. To have a dirty rifle was considered a serious offense, but to have dirty feet was not deemed nearly so serious a matter.

A paper on first-aid treatment of fractured thigh in military and civil practice by Major J. J. de Z. Marshall, R.A.M.C. (Vols), was read, in which the author claimed that the method he suggested could be carried out expeditiously and painlessly, and that it placed the limb in the best position for dealing with haemorrhage in a compound fracture and for subsequent permanent treatment in hospital.

A GERMAN ARMY EXPERIENCE.

THE members of the military force which Germany has had occasion to dispatch against the revolting Hereros in its South West African Colony appear to be suffering very much more severely than might have been expected. On the morning before the encounter at Ovikokero, or on March 13th, the total strength of the expedition consisted of twenty-two officers and 476 non-commissioned officers and men. Telegraphing just six weeks later a correspondent of the *Lokalanzeiger* gave a list of the losses which had been incurred up to that date from sickness and from the enemy. These were eight officers killed, four wounded and

two invalided; while of the non-commissioned officers and men, fifty-six had been killed, eighteen wounded, eight were dead from disease, and no less than sixty-two had been invalided through ill-health. Dealing with the non-commissioned officers and men these figures, represented in percentages of total strength, are: killed, 11.8 per cent.; wounded, 3.8 per cent.; invalided for sickness, 13.0 per cent.; and dead from disease, 1.7 per cent.; while taking the officers, the percentages are: killed, 36.3 per cent.; wounded, 18.1 per cent.; invalided, 9.0 per cent. These figures are decidedly interesting. We doubt very much if they have ever been even approached in any corresponding English expedition within modern times, for they amount to a loss of practically one-third of the whole force in the short space of a month and a half. The figures are all the more remarkable because German South-West Africa has what is in no way an unhealthy climate. It lies much upon the same level as the Transvaal, and it has proved very suitable for colonization by Europeans; nor was the season in which the operations were undertaken the warm part of the year, but the beginning of the African winter. It might, therefore, have been reasonably expected that it would prove easy to keep a small compact body of troops in the best of health. The expedition is the sort of military operation which the British army is constantly carrying on all over the world, and we are certain that a similar sick rate and death rate in a force of corresponding size, even under climatic conditions incomparably less healthy, would have caused a tremendous outcry. The incident tends to show that our own army medical officers have very much less to learn from their foreign compeers than we are constantly being told is the case. It is to be noted also that upon the day the correspondent dispatched his telegram there were, in addition to the losses already registered and given above, forty-four other men in hospital with typhoid fever.—*British Medical Journal*.

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Editorial Expression.

GETTING DOWN TO THE GROUND.

ONE of the most important branches of military hygiene is comprised in the clothing of the soldier, and of this the most important feature is beyond question the dress of the feet. In an interesting article upon this subject, read at the recent meeting of the British Medical Association, Major G. S. Crawford, R.A.M.C. holds that "shoes should be carefully fitted indoors over thick socks. The shoes should be laced and the recruit directed to walk up and down the room to see if they are comfortable. The shoe should be sufficiently large to allow for the expansion of the foot when hot after marching some distance. Soldiers should never be allowed to wear shoes with pointed toes. This requires constant supervision, as most of them have an idea that such shoes are smart, and provide them from local shoemakers. Shoes with broad toes should be insisted upon. The heels should be broad and not too high. The soles should be thick, but pliant. Hobnails in the soles are useful, as they resist wear, and need not interfere with the pliancy of the sole. The vamp should be pliant over the roots of the toes. The shoe should be roomy over the toes. The greater thickness of the great toe and the varying thickness of the toes in different persons has to be considered. If necessary, the shoes should be blocked to fit the toes. Pressure on the toes from too short shoes or shoes with pointed toes must always be prevented. The quarter or hinder portion of the shoes must not be too high or it will interfere with the action of the ankle joint. The part covering the ankle joint should be soft and pliant. The shoes should fit comfortably over the instep. If properly fitting shoes can not be obtained from army stores, especially made shoes should be provided. A large proportion of the men who report sick with blistered feet

state that the fitting of shoes is very often carried out in a most perfunctory manner. The recruit should be instructed to wear new shoes about the barracks for some time before going for a long march in them, and to keep them soft with frequent dubbing. After getting wet, shoes should be slowly dried away from the fire, and then thoroughly rubbed with dubbing."

Upon the same occasion Colonel P. B. Giles said that "shoes should be large enough to give freedom antero-posteriorly as well as laterally, without being loose. Loose shoes may be



American Army Marching Shoe, 1905.
Orthopedic Last. Front View.
Double Sole.

easy to slop about in but are antagonistic to long, sustained marching, as the constant friction causes callosities, corns, and blisters, to prevent which a stiff, as compared with a flexible, movement of the foot is created which soon produces shin soreness. The soles should be thick, the waist pliable, and the heels large and low, but the *sine qua non* is that the inside of the shoe must be cut straight and coincide with Meyer's line, and not turn up at the toe. The upper should be soft, and there should be no harsh seam at the heels. Short shoes create hammer-toe; too wide, blisters and

corns; and pointed toes, bunions and overlapping phalanges."

In the foregoing quotations we have substituted the word "shoe" for the word "boot," used by the authors, since the American practice applies the word "boot" only to the riding boot without laces.

For many years the shoe of the American soldier has been of the highest type. No army in the world has been so well shod

as has that of the United States, but in the latest improved shoe, which is now being constructed for issue to the forces, the nearest approach to perfection has been reached. This is the "russet tanned marching shoe, blucher style, orthopedic last," illustrations of which we are able to present through the courtesy of Quartermaster General Charles F. Humphrey, U.S.A., under whose direction it has been designed. The material employed is russet tanned grain calf and it is built with a broad toe of the box type and with a toe cap. There are two thicknesses of sole adapted to different climates and different conditions. In order to admit

of a proper fit there are no less than seventy-five different sizes, ranging from 5 to 12, with intervening half sizes and with "C," "D," "E," "EE," and "F" widths. With the two thicknesses of sole, the fifteen sizes and the five widths, it



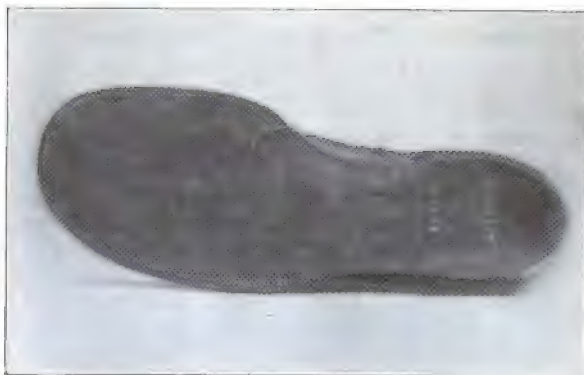
**American Army Marching Shoe, 1905. Orthopedic Last.
Profile View. Single Sole.**

will be seen that there are available for issue to the American soldier 150 varieties in size of shoes, so that the man who can not be properly fitted will be rare indeed.

In its general shape this shoe appears to fulfill every requirement for the most satisfactory work. The "common-sense" contour of the sole, with its broad heel and still broader toe, fully complies with the physiological indications. The low heel maintains the proper equilibrium in the erect attitude. The pliable upper permits of a close fit with consequent ample support of the ankle

and instep, without danger of constriction. The tan color is cool and comfortable both to feeling and sight.

It may be remarked in this connection that socks of light weight for summer wear and of heavy weight for winter use are provided, and that the wrapping with rags and bandages, as prac-



American Army Marching Shoe, 1905. Orthopedic Last.
View of Sole.

ticed among the forces of continental Europe, is never employed in America.

By the precautions then of providing proper shoes and stockings, foot troubles have been of comparative-

ly small importance in American military medicine, and it is anticipated that this new improvement in footgear will still further reduce the disability rate for these affections, and enable the American soldier to "get down to the ground" to the best possible advantage.

THE VON LANGENBECK TRUST.

IN 1897 the family of the late Surgeon General von Langenbeck provided a fund to promote the study of military surgery and placed its administration in the hands of a commission to consist of the Surgeon General in Chief of the German Army, the President of the German Surgical Society and von Langenbeck's successor as Professor and Director of the Royal Surgical Clinic in Berlin. The first grant from this fund was devoted to the expenses of a medical representative with the Russian Army in Manchuria in 1904, Staff Surgeon Schaefer of the Medical Department of the Prussian War Office, being appointed to act in that capacity. Dr. Schaefer was granted six months leave, at the end of which his status was changed to that of German medical attaché and his duty continued.



The Fourteenth Annual Meeting

Supplementary Program.

THE preparations for the fourteenth annual meeting of the Association of Military Surgeons of the United States have now been completed and at the time of the issue of this number of the JOURNAL, the meeting is in full progress with a superb program containing the following features in addition to those recounted in the Preliminary Program published last month.

The Efficiency of the Enlisted Man of the Hospital Corps. with Especial Reference to the National Guard. By Major George M. Coates, N.G. Pa.

The enlisted man of the Hospital Corps has, in times past, not been of the same quality, considering the work that he is called upon to perform, as the enlisted man of the line. The enlisted man of the Hospital Corps of the present day even, especially in the National Guard, is often found to be lacking in the qualities and attainments, instruction and training to properly fit him for his calling. Much might be done in the way of instruction of these men but, in the National Guard, there is a special field for selection especially in the cities, in the presence of medical students and internes who make most valuable men for military purposes. The special training they are receiving or have received should be supplemented by instruction in Military Hygiene, Military Surgery and First Aid and by Drill. A Corps composed of men of this character may be made still more efficient by proper organization and by their being tested and worked together.

The Service of Negroes in Hospital Corps Detachments. By Captain J. H. Ford, U.S.A.

Referring to the disinclination of the white and black races to mingle on a friendly basis, the author recommends that the Hospital Corps be so assigned to duty that colored members may serve with colored troops and vice versa, giving full reasons for his opinions.

Some Physical Effects of Gun Fire. By Fleet Surgeon T. Lloyd Thomas, R. N.

Organization for Instruction in Colonial Medicine. A translation from the French of Brouardel and Wurtz. By Surgeon Sheldon G. Evans, U.S.N.

A full discussion of methods employed in teaching colonial medicine, including descriptions of the colonial institutes of Marseilles, Bordeaux and Paris, with comments and suggestions by the translator.

A Much-Needed and Easily-Effectuated Reform in Camp Sanitation. By Assistant Surgeon Norman Roberts, P.H. & M.H.S.

The author takes up the consideration of the disposal of excreta and presents with graphic illustrations methods for the prevention of camp infection.

Address by the Dean of the Foreign Delegates, Surgeon General S. Suzuki, of the Imperial Japanese Navy.

Military Headgear in its Relation to the Health of the Soldier. By Contract Surgeon Harold D. Corbusier, U.S.A.

Some historic types. Most headgear provides no protection against actinic rays and has no proper ventilation, etc. Blond races require more protection from sun's rays than dark races, however the latter are better equipped as to headgear than we are. Actinic rays are responsible for sun-stroke proper and should be excluded from the head. The modified pith helmet for garrison, and modified campaign hat for field are recommended for use in hot climates. Essentials of proper headgear: opacity to actinic rays; proper ventilation; light weight; protection to eyes, head and neck; durability; invisibility at distance; soldierly appearance; moderate cost.

The Question of the Origin of the Lues Venerea Among the Conquistadores in Mexico. By Capt. Henry DuR. Phelan, U.S.V.

The question as to whether the syphilis with which the army of Cortez in Mexico was affected was carried to the Aztec Empire by the Spaniards or conveyed to them by the natives is a debated question. The author considers the problem and arrives at a conclusion as the result of his studies.

Elisha Kent Kane, U.S.N.—A Sketch. By Medical Director John C. Wise, U.S.N.

An account of the contribution to the world's history of a medical officer of the United States Navy whose name has become famous for his Arctic researches.

A Brief Sketch of the Evolution of the Medical Service of the British Army. By Colonel W. J. R. Rainsford, R.A.M.C.

A description of the changing conditions which have appeared in the British Army Medical Service since the author joined it in 1876, with special reference to the great advantages that have been bestowed upon it since the late South African War.

Experiences with the Russian Army in Manchuria. By Colonel Valery Havard, U.S.A.

Manchuria in winter. Remarks about its climate. Winter quarters of the Russian troops. Possibility of active warfare in the coldest winter weather. Food and ration, with especial remarks on the ambulant company kitchen. First aid and service of the front. Projectiles and wounds. Disease and hygiene. Statistics.

Effects of Climatic Extremes on the Health of Battleship Personnel. By Surgeon Corben J. Decker, U.S.N.

This paper will show by graphic illustrations:— 1. The ill effects due to prolonged exposure to climatic extremes on board ship; 2 Referring to structural and dietetic conditions particularly tending to depress the physique when so exposed; 3. Suggesting modifications in construction and detail for cruising that would be beneficial.

On the Importance of the Prevention of Infectious Diseases in the Navy, with a Suggestion as to the Prophylactic Treatment of Some of the Acute Exanthemata. By Medical Inspector Henry G. Beyer, U.S.N.

While infectious diseases are not so readily introduced on shipboard as on shore, yet they are even more dangerous when they have been insinuated into a ship's company. The author dwells strongly upon the importance of disinfection in connection with the treatment of any cases of the acute exanthemata, which may arise on board ship, as a preventative of extension of infection, illustrating his views by examples from his own experience and quotations from that of others.

The Real Triumph of Japan or the Conquest of the Silent Foe. By Major Louis Livingston Seaman, U.S.V.E.

The author has just returned from a second experience in Manchuria and Japan, where he has given the closest scrutiny to the conditions upon which the Japanese have founded their successful work in the way of military sanitation, and presents in this paper a summary of the information acquired.

A Method of Artificial Feeding of Infants in the Tropics. By Lieutenant Leon T. LeWald, U.S.A.

On account of the difficulty and impracticability of obtaining fresh cow's milk in the tropics, particularly in the Philippines, the author recommends the substitution of a preparation based upon evaporated milk ("cream").

Hearing Affections and Military Service. By Emil Amberg, M.D.

Brief review of some of the regulations regarding affections of the ear in relation to military service in Austria, France, Germany, Great Britain, Italy and the United States. Besides the French surgeon Petit (1674-1760) we are indebted to the Prussian military surgeon Jasser for an important contribution. Not only is Jasser's addition to science in 1776 of great importance, but it also demonstrates that a great difference existed in the estimation of ear suppuration and its bearing on military service. In spite of the advance in surgical otology the existing regulations should remain as they are.

The Value of Scopolamin-Morphine as a general Anaesthetic. By Major Alfred C. Wood, N.G.Pa.

1. A very brief historical review. 2. Indications and contraindications. 3. Dose and administration. 4. Results of other operators. 5. Personal experiences. 6. Summary.

Personal Experience in Spinal Analgesia and its Application to Military Surgery. By Captain Henry D. Thomason, U.S.A.

A report based upon personal experience in twenty-eight cases, concluding that it (1) obviates the necessity for the storage and transportation of so large quantities of general anaesthetics; (2) is much more economical than general anaesthetics; and (3) the immense saving of time and attention in its administration; (4) the saving in operative personnel,—dispensing with the necessity of anaesthetizers; (5) the saving in number of attendants for individual patients; after operation under spinal analgesia patients do not require such attention as under general anaesthesia; (6) the saving in number of bearers,—under spinal analgesia patients much more able to assist themselves; (7) its employment on the field of battle, at dressing stations, ambulance stations, etc. would be the means of relieving much suffering, as well as the prevention of shock from pain, and at the same time render the wounded man better able to assist himself in reaching the field hospital.

The Treatment of Fractured Ribs. By Surgeon R. M. Woodward, P.H.&M.H.S.

The affected side of the chest is strapped with over-lapping strips of adhesive plaster covering the entire side from slightly over the crest of the ilium to the axilla. The chest is then encased in gauze bandage and over this, a starch bandage jacket with suspenders is applied.

Calx Sulphurata, U.S.P., as a Preventive of Yellow Fever. By former Assistant Surgeon William F. Waugh, U.S.N.

It has been stated that persons saturated with this drug, which is harmless, will not be attacked by any insect. A recent test in Louisiana goes to confirm this statement, a fact of the highest value, if it be further demonstrated.

News of the Services.

A. A. Surgeon W. E. Addis, P.H.&M.H.S., ordered to Jackson, Miss.

Medical Inspector F. Anderson, U.S.N., ordered from the Washington Marine Barracks to the Mare Island Navy Yard.

Lieutenant P. M. Ashburn, U.S.A., ordered from Fort Missoula to the Philippines.

Assistant Surgeon F. A. Ashford, P.H.&M.H.S., ordered from Ellis Island to New Orleans for special temporary duty.

Surgeon H. W. Austin, P.H.&M.H.S., detailed to represent the Service at the Detroit meeting of the Association of Military Surgeons.

Assistant Surgeon R. A. Y. Bachmann, U.S.N. ordered to the *Lancaster*.

Lieutenant Frank C. Baker, U.S.A., ordered as a member of the Infantry Rifle Team from Fort Sheridan to Sea Girt, thence to his station at the Presidio of Monterey, and thence to the Philippines, November 5, 1905.

Assistant Surgeon M. W. Baker, U.S.N., ordered from the San Juan Naval Station home to await orders.

Surgeon C. E. Banks, P.H.&M.H.S., ordered to Jacksonville, Fla., and Montgomery, Ala., for special temporary duty.

Lieutenant C. C. Billingslea, U.S.A., ordered from Fort Riley to temporary duty at Fort D. A. Russell.

Lieutenant Robert M. Blanchard, U.S.A., ordered from Fort Thomas to the Philippines, November 5, 1905.

Lieutenant Horace D. Bloombergh, U.S.A., ordered home from the Philippines, January 15, 1906.

Major William C. Borden, U.S.A., has been appointed a delegate to the Detroit meeting of the Association of Military Surgeons.

Lieutenant James Bourke, U.S.A., granted three months leave.

Lieutenant Perry L. Boyer, U.S.A., granted three months leave.

P. A. Surgeon J. M. Brister, U.S.N., ordered from the *Atlanta* home to await orders.

Assistant Surgeon F. H. Brooks, U.S.N., ordered to the Naval Medical School.

Lieutenant Charles Y. Brownlee, U.S.A., relieved from duty in the Philippines, November 1, 1905.

P. A. Surgeon C. St. J. Butler, U.S.N., ordered from the *Castine* to the San Juan Naval Hospital.

Dr. Caspar R. Byars, U.S.A., ordered from Fort Sam Houston to Fort

Sill for temporary duty with provisional regiment of field artillery, and to accompany the 2nd Battalion Field Artillery to Fort Sam Houston.

Surgeon J. G. Byrnes, U.S.N., ordered from the *Texas* to the Naval Academy.

Lieutenant James Carroll, U.S.A., ordered as delegate to the American Public Health Association.

Lieutenant Robert L. Carswell, U.S.A., ordered home from the Philippines, February 15, 1906.

Captain W. P. Chamberlain, U.S.A., relieved from duty in the Philippines, February 1, 1906.

Lieutenant Walter C. Chidester, U.S.A., ordered from Fort Lawton to the Philippines, December 5, 1905.

Lieutenant John A. Clark, U.S.A., relieved from duty in the Philippines, November 1, 1905.

Assistant Surgeon L. E. Cofer, P.H.&M H.S., ordered to Hilo, Hawaii for special temporary duty.

Lieutenant Jacob M. Coffin, U.S.A., relieved from duty in the Philippines, November 1, 1905.

Dr. Albion McD. Coffey, U.S.A., ordered from Fort Lawton to Fort Davis, Alaska.

Lieutenant Clarence H. Connor, U.S.A., ordered home from the Philippines, December 15, 1905.

Lieutenant Colonel William H. Corbusier, U.S.A., ordered home from the Philippines, January 15, 1906.

Lieutenant George H. Crabtree, U.S.A., ordered to give temporary medical attendance at Fort Wood.

Lieutenant Frederick A. Dale, U.S.A., ordered from Fort Walla Walla to the Philippines, December 5, 1905.

Sergeant, 1st Class, Leopold David, Hospital Corps, U.S.A. has been awarded a certificate of merit for distinguished service in voluntarily continuing on a journey from Circle City to Fort Yukon, Alaska, in March, 1905, to relieve reported suffering among the natives, after his only assistant had been left behind disabled, although his feet became frozen and several of his toes were lost.

Lieutenant Colonel W. B. Davis, U.S.A., ordered home from the Philippines, October 15, 1905.

Lieutenant William T. Davis, U.S.A., ordered home from the Philippines, December 15, 1905.

P. A. Surgeon C. E. DeLancy, U.S.N., ordered to the *Paducah*.

Lieutenant Samuel M. DeLoffre, U.S.A., ordered from Fort Schuyler to the Philippines, November 5, 1905.

A. A. Surgeon H. DeValin, U.S.N., ordered from the *Wolverine* to await orders.

Lieutenant Wallace DeWitt, U.S.A., ordered from Fort Washakie to the Philippines, December 5, 1905.

P. A. Surgeon H. A. Dunn, U.S.N., ordered from the *Terror* home to await orders, and to the Naval Proving Grounds, Indian Head.

Lieutenant Louis C. Duncan, U.S.A., ordered home from the Philippines, December 15, 1905.

Lieutenant William A. Duncan, U.S.A., ordered from Fort Leavenworth to the Philippines.

Assistant Surgeon H. G. Ebert, P.H.&M.H.S., two months leave revoked

Lieutenant James F. Edwards, U.S.A., ordered from Fort Leavenworth to the Philippines, December 5, 1905.

Assistant Surgeon B. Elmore, U.S.N., ordered to the Naval Medical School.

Assistant Surgeon E. O. J. Eytinge, U.S.N., ordered to the Naval Medical School.

Assistant Surgeon R. C. Farwell, U.S.N., ordered from the *Brooklyn* to the *Worden*.

Lieutenant James D. Fife, U.S.A., relieved from duty in the Philippines, November 1, 1905.

Captain Charles E. B. Flagg, U.S.A., relieved from duty in the Philippines, November 1, 1905.

Captain Clyde S. Ford, U.S.A., ordered to temporary duty at Fort McPherson.

Assistant Surgeon A. D. Foster, P.H.&M.H.S., ordered from Naples to Trieste for special temporary duty.

P. A. Surgeon M. H. Foster, P.H.&M.H.S., ordered to Galveston, Texas, for special temporary duty.

P. A. Surgeon G. F. Freeman, U.S.N., ordered from the Olongapo Naval Station to the Cavite Naval Station.

Major Charles M. Gandy, U.S.A., has been appointed a delegate to the Detroit meeting of the Association of Military Surgeons.

Lieutenant Nelson Gapen, U.S.A., ordered home from the Philippines, December 15, 1905.

P. A. Surgeon C. H. Gardner, P.H.&M.H.S., ordered to New Orleans, La., for special temporary duty.

Dr. Fletcher Gardner, U.S.A., granted a month's leave.

Surgeon James M. Gassaway, P.H.&M.H.S., ordered to Guthrie, Okla. for special temporary duty.

Assistant Surgeon A. J. Geiger, U.S.N., ordered from the *Severn* on waiting orders, with thirty days leave.

Colonel Joseph B. Girard, U.S.A., ordered to the Philippines.

P. A. Surgeon Joseph Goldberger, P.H.&M.H.S., ordered from Mansfield to Alexandria, La., and from Natchez to Memphis and to Bainbridge, Ga. for special temporary duty.

Lieutenant J. W. Grissinger, U.S.A., relieved from duty in the Philippines, November 1, 1905.

Lieutenant Robert B. Grubbs, U.S.A., ordered from Fort Wright to the Philippines, December 5, 1905.

Surgeon A. G. Grunwell, U.S.N., ordered from the New York Naval Hospital to the *Wolverine*.

Assistant Surgeon Marshall C. Guthrie, P.H.&M.H.S., appointed August 30, 1905.

A. A. Surgeon R. P. Hall, P.H.&M.H.S., ordered to Jackson, Miss., for temporary duty.

Dr. Francis A. Halliday, U.S.A., ordered from Fort Caswell to Fort Fremont.

Lieutenant John W. Hanner, U.S.A., ordered home from the Philippines, January 15, 1906.

Lieutenant Haywood S. Hansell, U.S.A., ordered from Peking, China to the Philippines.

Lieutenant Jesse R. Harris, U.S.A., granted one month's extension of leave.

Assistant Surgeon G. G. Hart, U.S.N., ordered to the *Glacier*.

P. A. Surgeon G. S. Hathaway, U.S.N., ordered to the Washington Naval Hospital.

Assistant Surgeon H. S. Hathaway, U.S.N., ordered to the Naval Medical School.

Colonel Valery Havard, U.S.A., has been appointed a delegate to the Detroit meeting of the Association of Military Surgeons.

Lieutenant Philip W. Huntington, U.S.A., ordered home from the Philippines, December 15, 1905.

Surgeon Fairfax Irwin, P.H.&M.H.S., ordered to Washington and New York for special temporary duty.

Lieutenant George W. Jean, U.S.A., ordered from Fort Adams to the Philippines.

Lieutenant George F. Juenemann, U.S.A., ordered from Fort Ringgold to the Philippines, November 5, 1905.

Captain James M. Kennedy, U.S.A., ordered to accompany the 17th Infantry from the Presidio of San Francisco to Fort McPherson and then return, with two months leave.

Dr. James S. Kennedy, U.S.A., ordered from Fort Grant to Fort Omaha.

Major Charles F. Kieffer, U.S.A., granted two months leave.

Lieutenant E. D. Kilbourne, U.S.A., relieved from duty in the Philippines, November 1, 1905.

P. A. Surgeon W. W. King, P.H.&M.H.S., ordered to San Juan, P. R., for special temporary duty.

Captain Thomas J. Kirkpatrick, U.S.A., relieved from duty in the Philippines, December 1, 1905.

Dr. Fred T. Koyle, U.S.A., granted a month's leave.

Lieutenant Lloyd LeR. Krebs, U.S.A., order to duty with the United

States Transport Service revoked, and ordered to the Camp of Instruction at Henry Ranch, San Luis, Obispo County, Cal.

Lieutenant Samuel E. Lambert, U.S.A., ordered home from the Philippines, December 15, 1905.

Assistant Surgeon M. E. Lando, U.S.N., ordered from the Mare Island Naval Hospital to the Naval Medical School.

P. A. Surgeon C. H. Lavinder, P.H.&M.H.S., ordered from Gulfport to New Orleans and from New Orleans to Natchez for special temporary duty.

Dr. Robert Lemmon, U.S.A., ordered from Fort McKinley to Fort Warren for temporary duty.

Lieutenant Leon T. LaWald, U.S.A., ordered home from the Philippines, January 15, 1906.

Major William F. Lewis, U.S.A., relieved from duty in the Philippines, November 1, 1905.

Surgeon C. H. T. Lowndes, U.S.N., ordered from the Naval Academy to the *Texas*.

Lieutenant James I. Mabree, U.S.A., ordered from Fort Casey to the Philippines, January 5, 1906.

Lieutenant Patrick H. McAndrew, U.S.A., ordered from Jefferson Barracks to the Philippines, December 5, 1905.

Dr. James H. McCall, U.S.A., ordered to his home, Huntington, Tenn., for annulment of contract.

Assistant Surgeon R. K. McClanahan, U.S.N., ordered from the Baltimore Naval Recruiting Station to examination for promotion and to await orders.

Medical Inspector W. A. McClurg, U.S.N., ordered from the Bureau to the Washington Marine Barracks.

Assistant Surgeon A. M. D. McCormick, U.S.N., ordered from the *Hartford* home to wait orders, and to the Naval Academy.

P. A. Surgeon A. J. McLaughlin, P.H.&M.H.S., ordered from Naples, Italy, to Hamburg, Germany.

A. A. Surgeon R. L. McMahon, P.H.& M.H.S., granted a month's leave.

Surgeon G. M. Magruder, P.H.&M.H.S., granted one month's sick leave.

Colonel H. Mareschal, Principal Medical Officer of the 1st Class in the French Army, detailed to represent his government at the meeting of the Association of Military Surgeons of the United States.

Assistant Surgeon E. R. Marshall, U.S.N., ordered to the Naval Medical School.

Assistant Surgeon J. B. Mears, U.S.N., ordered to the Naval Medical School.

Lieutenant R. F. Metcalfe, U.S.A., assigned to temporary duty as Transport Surgeon of the *Buford* en route from Manila to San Francisco, there to report to the Military Secretary for orders.

Lieutenant William H. Moncrief, U.S.A., ordered home from the Philippines, December 15, 1905.

Major E. R. Morris, U.S.A., ordered to Fort Slocum, N. Y.

Lieutenant Samuel J. Morris, U.S.A., ordered home from the Philippines, January 15, 1906.

Lieutenant Charles F. Morse, U.S.A., ordered home from the Philippines, December 15, 1905.

Assistant Surgeon C. D. Munger, U.S.N., ordered to the Naval Medical School.

Assistant Surgeon H. T. Nelson, U.S.N., ordered to the Naval Medical School.

Assistant Surgeon G. M. Olson, U.S.N., ordered to the Naval Medical School.

P. A. Surgeon J. E. Page, U.S.N., ordered from the *Lancaster* home to await orders.

Captain George P. Peed, U.S.A., ordered from Fort Bayard to the Philippines.

Major James Evelyn Pilcher, Secretary of the Association of Military Surgeons of the United States, has been elected President of the Cumberland Valley Medical Association.

Lieutenant William A. Powell, U.S.A., relieved from duty in the Philippines, November 1, 1905.

Captain Ralph S. Porter, U.S.A., assigned to temporary duty as Transport Surgeon on the *Buford* en route to Manila.

Surgeon J. C. Pryor, U.S.N., ordered to the Naval Medical School.

Lieutenant Harry S. Purnell, U.S.A., ordered home from the Philippines, January 15, 1906.

Lieutenant Will T. Pyles, U.S.A., relieved from duty in the Philippines, November 1, 1905.

Captain W. W. Quinton, U.S.A., ordered from Fort McPherson, Ga., to temporary duty at Fort Barrancas, Fla.

Lieutenant John J. Reilly, U.S.A., ordered from Fort Slocum to the Philippines.

Lieutenant Charles R. Reynolds, U.S.A., ordered from Washington Barracks to the Philippines, December 5, 1905.

Surgeon T. W. Richards, U.S.N., ordered from the *Arkansas* to the Baltimore Naval Recruiting Station.

Assistant Surgeon R. E. Riggs, U.S.N., ordered from the *Newark* home to await orders.

Lieutenant William Roberts, U.S.A., ordered from Fort Hamilton to the Philippines, November 5, 1905.

Lieutenant W. M. Roberts, U.S.A., ordered from Fort Sill to the Philippines.

P. A. Surgeon M. J. Rosenau, P.H. & M.H.S., ordered to New Orleans for special temporary duty.

Surgeon A. C. H. Russell, U.S.N., ordered from the *Newark* to the Bureau of Medicine and Surgery.

Captain H. H. Rutherford, U.S.A., promoted from Lieutenant, August 16, 1905.

Surgeon H. W. Sawtelle, P.H.&M.H.S., ordered for special temporary duty at Richmond, Norfolk and other points in Virginia.

Assistant Surgeon F. S. Sellers, U.S.N., ordered to the Naval Medical School.

Dr. James E. Shellenberger, U.S.A., granted three months leave.

Lieutenant J. L. Shepard, U.S.A., granted thirty days leave, and ordered from the Presidio General Hospital to the Philippines.

Assistant Surgeon F. M. Shook, U.S.N., ordered to the Naval Medical School.

Lieutenant J. R. Shook, U.S.A., ordered to accompany troops from Fort Des Moines, Iowa, to Terre Haute, Ind.

Lieutenant Edmund D. Shortlidge, U.S.A., ordered from Hot Springs, Ark., to the Philippines, November 5, 1905.

Lieutenant Joseph F. Siler, U.S.A., on field duty from Fort Meade, S. Dak., with the 6th Cavalry, and ordered from Fort Meade to the Philippines.

Major J. O. Skinner, U.S.A., as Medical Superintendent of the Columbia Hospital for Women in Washington, publishes a valuable and interesting report of the work of that Institution for 1904-1905.

Lieutenant Cary A. Snoddy, U.S.A., ordered home from the Philippines, January 15, 1906.

Assistant Surgeon P. R. Stahlaker, U.S.N., ordered to the Naval Medical School.

P. A. Surgeon H. A. Stansfield, P.H.&M.H.S., ordered from the Canal Zone to the Bureau, granted a month's sick leave and assigned to duty at the Hygienic Laboratory.

P. A. Surgeon J. Stepp, U.S.N., ordered from the *Topeka* home to await orders.

A. A. Surgeon J. W. Stevenson, P.H.&M.H.S., ordered to Washington, D. C., for special temporary duty.

Assistant Surgeon E. A. Sweet, P.H.&M.H.S., ordered from New Orleans to Fort Stanton.

Lieutenant E. M. Talbott, U.S.A., relieved from duty in the Philippines, November 1, 1905.

P. A. Surgeon J. S. Taylor, U.S.N., ordered from the *Ohio* to the American Legation at Peking, China.

Lieutenant R. M. Thornburgh, U.S.A., granted thirty days leave, and ordered from Fort Warren to the Philippines.

P. A. Surgeon F. E. Trotter, P.H.&M.H.S., ordered to Victoria, B. C. for special temporary duty.

Lieutenant James W. Van Dusen, U.S.A., ordered from West Point to the Philippines.

Lieutenant G. McD. Van Poole, U.S.A., ordered from Fort Stevens to the Philippines.

Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S., detailed to represent the Service at the Detroit meeting of the Association of Military Surgeons.

Dr. Milton Vaughan, U.S.A., ordered from Fort Crook to Little Rock, Ark. for annulment of contract.

P. A. Surgeon R. H. von Ezdorf, P.H.&M.H.S., ordered from the Canal Zone to New Orleans for special temporary duty.

Lieutenant William E. Vose, U.S.A., ordered from Fort Sheridan to the Philippines, November 5, 1905.

Medical Director J. E. Waggener, U.S.N., ordered from the Mare Island Navy Yard home to await orders.

Assistant Surgeon R. A. Warner, U.S.N., ordered to the Naval Medical School.

Dr. W. F. Waugh, formerly Assistant Surgeon U.S.N., has been elected President of the Tri-State Medical Society.

Dr. Walter Whitney, U.S.A., ordered to accompany troops from Columbus Barracks to Fort McDowell.

Assistant Surgeon G. L. Wickes, U.S.N., ordered from the Cavite Naval Station to the *Ohio*.

Lieutenant Allie W. Williams, U.S.A., ordered from Fort Greble to the Philippines, January 5, 1906.

Surgeon L. L. Williams, P.H. & M.H.S., ordered to inspect the Quarantine Station at Baltimore.

Lieutenant Robert N. Winn, U.S.A., ordered from Fort McDowell to the Philippines.

Lieutenant Frank T. Woodbury, U.S.A., ordered from Plattsburgh Barracks to the Philippines, November 5, 1905.

Dr. O. W. Woods, U.S.A., ordered to accompany troops from Vancouver Barracks to San Francisco and to return.

Surgeon R. M. Woodward, P.H.&M.H.S., detailed to represent the Service at the American Public Health Association at Boston.

Captain John D. Yost, U.S.A., promoted from Lieutenant, July 2, 1905.

Surgeon General Krockner and Chief Staff Surgeon Friedheim of the German service, are preparing a dictionary of military and naval medicine (*Handwörterbuch des Militär Sanitätswesens*), which will be published soon, and will contain complete accounts of the organization of the sanitary services of all countries and cover the entire field of military medicine, surgery and hygiene.

Current Literature.

MODERN CLINICAL MEDICINE.*

UNDER the general title of Modern Clinical Medicine, D. Appleton & Co., of New York are reproducing an American edition of the *Deutsche Klinik*, which has had great vogue and widespread popularity in Germany, the American edition appearing under the editorship of Prof. J. C. Wilson of Philadelphia, with the special editorial supervision of Prof. Julius L. Salinger, also of that city. The first volume, covering the subject of Infectious Diseases, contains in a single group all of the articles on that phase of medicine, which have been scattered throughout the German work, and is fully up to date in every respect. Among the affections worthy of particular note are Typhoid Fever, Dengue, Yellow Fever, Tuberculosis, Bubonic Plague and Malta Fever, all of which are treated fully and yet succinctly.

MALARIA, INFLUENZA, DENGUE.†

FEW of the volumes of Nothnagel's Practice, of which this is the tenth, will appeal more strongly to the military practitioner than that upon malaria, influenza and dengue. The original German work was an authority of the highest standing, but the present edition, with the careful revision of Prof. Ronald Ross and other able authorities of the Liverpool school is par excellence the last word upon the subjects. The mosquito factor of malaria is exhaustively discussed by Dr. Stephens and the therapeutics and clinical history are of the most recent type.

***Modern Clinical Medicine.** Infectious Diseases. Edited by J. C. WILSON, M.D., and JULIUS L. SALINGER, M.D. 8vo; pp. 925, with two colored plates and sixty illustrations. New York, D. Appleton & Co., 1905.

†**Malaria, Influenza, and Dengue.** Volume X of the American edition of Nothnagel's Practice. By Dr. J. MANNABERG and Dr. C. LEICHTENSTERN. Edited by RONALD ROSS, F.R.C.S., J. W. W. STEPHENS, M.D., and ALBERT S. GRÜNBAUM, F.R.C.P. 8vo; pp. 769, illustrated. Philadelphia and London, W. B. Saunders & Co., 1905.

THE ADDRESSES OF DR. KEEN.*

NO physician of the present day has made a deeper impression through his public appearances than Dr. W. W. Keen, the well known teacher and writer upon surgery. Particular interest attaches then to this collection of addresses and other papers in popular vein. Nearly all of them have appeared in print and have attracted much attention through their clever diction and fascinating context. The opening chapter upon the early history of practical anatomy is a charming disquisition upon a most interesting subject. The closing chapter, comprising his surgical reminiscences of the Civil War, is a glowing picture of the military medical work of Rebellion times, brought down, however, to so recent a date as to contain a reference to the May, 1905 number of this JOURNAL; while the intervening sections are equally interesting and attractive to the reader.

THE PRACTICE OF GYNECOLOGY.†

IN this thoroughly developed work, Dr. Ashton adapts himself particularly to the student, neglecting no detail desirable to impress upon the learner the facts to be brought out, and it is this characteristic which gives especial serviceability to the book as an aid to and preparation for practice. A noteworthy variation from former methods is the substitution, for a general chapter upon physical examination, of a discussion of the examination of each organ preliminary to a consideration of its diseases. The work is illustrated with unusual profuseness by cuts made especially for it and numbering over a thousand, all of which adds to the luminous character of the text. Especial attention is devoted to visceral injuries, a feature that will be appreciated by the practical surgeon.

***Addresses and Other Papers.** By WILLIAM WILLIAMS KEEN, M.D. 8vo; pp. 441, illustrated. Philadelphia and London, W. B. Saunders & Co., 1905.

†**A Text Book on the Practice of Gynecology.** By W. EASTERLY ASHTON, M.D. 8vo; pp. 1079, with 1046 illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

TOPOGRAPHIC AND APPLIED ANATOMY.*

THE superb work of Prof. Schultze of the University of Würzburg is based upon principles which add highly to its educational quality. It contains eighty-nine beautiful colored plates, somewhat diagrammatic in character, but at the same time retaining the natural and normal relations of the tissues. The work is of a convenient size for reference and for handling and this, in addition to its accuracy and definiteness, will render it a most valuable instrument in the work of the student or practitioner. The American editor has materially enhanced the value of the book by numerous interpolations.

MEDICAL AND SURGICAL PROGRESS.—1904.†

THE first two volumes of the Practical Medicine Series for 1905 appear in convenient form under the distinguished editorship, respectively, of Drs. Frank Billings and John B. Murphy, whose names are an ample guarantee of the high grade of work presented in the volumes. The books are genuine contributions to medical literature and should commend themselves most highly to progressive members of the profession.

BINNIE'S OPERATIVE SURGERY.‡

THIS handsome little operative manual is notable in the omission of such ordinary subjects as amputation and ligations and the operative treatment of the bones and joints, the author finding that the adequate treatment of these sub-

**Atlas and Text-Book of Topographic and Applied Anatomy.* By Prof. Dr. O. SCHULTZE. Edited by GEORGE D. STEWART, M.D. 4to; pp. 187, with twenty-five figures on twenty-two colored lithographic plates and eighty-nine text cuts. Philadelphia and London, W. B. Saunders & Co., 1905.

†*The Practical Medicine Series, 1905.* Edited by GUSTAVUS P. HEAD, M. D. Volume I. *General Medicine.* By FRANK BILLINGS, M. D. and J. H. SALISBURY, M. D. Volume II. *General Surgery.* By JOHN B. MURPHY, M. D. 12mo; pp. 347 and 545, with numerous illustrations. The Year Book Publishers, 40 Dearborn St., Chicago, 1905.

‡*Manual of Operative Surgery.* By JOHN FAIRBAIRN BINNIE, A.M., C.M. 12mo; pp. 644, with 559 illustrations in black and in colors. Philadelphia, P. Blakiston's Son & Co., 1905.

jects would require a separate volume. For the same reason such portions of genito-urinary and of rectal surgery, as are fully treated in the ordinary text-books, have also been omitted. The work is exceptionally systematic and clear. The operations are divided into steps, clearly marked and in categorical order, which adds very greatly to the serviceability of the directions. It will be found a most useful addition to the armamentarium of the young surgeon.

ENLARGEMENT OF THE PROSTATE.*

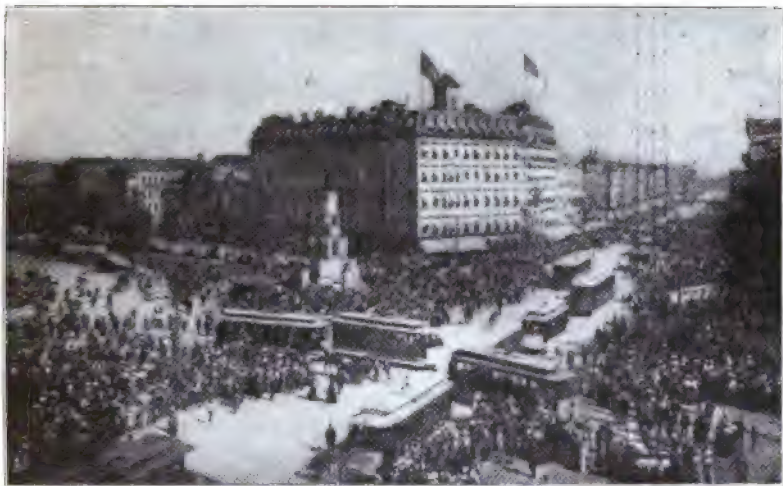
PROSTATIC surgery is a recent outgrowth of surgical progress which has taken so conspicuous a position in later operative work as to demand ample discussion. This was especially emphasized by the monopoly of an entire recent number of the *Annals of Surgery* by the subject. The further consideration of prostatic surgery by so eminent an authority as Dr. Deaver, is gratifying to the surgical profession. The book is an instance of the painstaking, complete and thorough work so characteristic of its author and may be recommended as an authority of the first class upon the subject of which it treats. It is issued uniform with Dr. Deaver's well known monograph on Appendicitis.

BOOKS RECEIVED.

A Compend of Diseases of the Eye and Refraction Including Treatment and Surgery. By GEORGE M. GOULD, M.D. and WALTER L. PYLE, M.D. Third edition, revised and corrected. 12 mo; pp. 295, with 109 illustrations. Philadelphia, P. Blakiston's Son & Co., 1904.

Malformations of the Genital Organs of Women. By CH. DEBIERRE. Translated by J. HENRY C. SIMES, M.D. 8vo; pp. 182 with 85 illustrations. Philadelphia, P. Blakiston's Son & Co., 1905.

***Enlargement of the Prostate:** Its, History, Anatomy, Etiology, Pathology, Clinical Causes, Symptoms, Diagnosis, Prognosis, Treatment, Technique of Operation and After-Treatment. By JOHN B. DEAVER, M.D. assisted by A. P. C. ASHHURST, M.D. Imp. 8vo; pp. 266, with 108 full page plates and a colored frontispiece. Philadelphia, P. Blakiston's Son & Co., 1905.



The Heart of Detroit.

The Fourteenth Annual Meeting, Detroit, Mich., September 26-28, 1905.

MINUTES OF THE MEETING.



THE Fourteenth Annual Meeting of the Association of Military Surgeons of the United States convened at the Hotel Cadillac, Detroit, Mich., on Tuesday morning, September 26, 1905, and continued in scientific session during the three ensuing days, with one day

additional devoted to the cultivation of mutual acquaintance, the following officers, members and delegates being in attendance:

OFFICERS.

Brevet Lieutenant Colonel **ALBERT HENRY BRIGGS**, Surgeon in the National Guard of New York, *First Vice President*.

Major **JAMES EVELYN PILCHER**, Brigade Surgeon of United States Volunteers, Captain, Retired, United States Army, *Secretary and Editor*.

Major **HERBERT ALONZO ARNOLD**, Surgeon in the National Guard of Pennsylvania, *Treasurer*.

Lieutenant **SAMUEL CHARLES GURNEY**, Assistant Surgeon in the Michigan National Guard, *Assistant Secretary*.

MEMBERS.

Major Charles Adams, Surgeon Illinois National Guard.
Lieut. Col. Leonard B. Almy, Medical Director, Conn. N.G., Retired.
Surgeon Hiram William Austin, P.H.&M.H.S.
Lieutenant Colonel Edwin Bentley, Surgeon U.S.A., Retired.
Major General Robert A. Blood, Surgeon General M.V.M., Retired.
Major William Cline Borden, Surgeon U.S. Army.
Lieutenant Truman W. Brophy, Illinois National Guard.
Captain Charles S. Butler, Assistant Surgeon M.V.M.
Captain William F. Breakey, Assistant Surgeon, U.S. Vols.
Surgeon William C. Braisted, U.S. Navy.
Major Thomas E. Carmody, Medical Department N.G. Colo.
Major Thomas C. Clark, Surgeon, Retired, Minn. N.G.
Major George M. Coates, Surgeon N.G. Pa.
Contract Surgeon Harold D. Corbusier, U.S. Army.
Acting Assistant Surgeon U. S. Grant Deaton, U.S. Army.
Brigadier General William H. Devine, Surgeon General of Mass.
Acting Assistant Surgeon J. Carlisle De Vries, U.S. Navy.*
Major William T. Dodge, Surgeon Mich. N.G.
Major Trevanian V. Dupuy, Surgeon Ohio N.G.
Colonel John B. Edwards, Surgeon General of Wisconsin.
Major F. B. Entrikin, Surgeon Ohio N.G.
Major Thomas W. Evans, Surgeon Wis. N.G.
Major David S. Fairchild, Jr., Surgeon Va. N.G.
Lieutenant John V. Frazier, Assistant Surgeon Mich. N.G.
Major Charles M. Gandy, Surgeon U.S. Army.
Captain Thomas Page Grant, Ky. S.G., Retired.
General Jefferson Davis Griffith, Surgeon General of Missouri, Retired.
Major Lovett T. Guerin, Brigade Surgeon Ohio N.G.
Major George H. Halberstadt, Brigade Surgeon N.G. Pa.
Major Thomas E. Halbert, Surgeon Tenn. N.G.
Captain Luther S. Harvey, Assistant Surgeon U.S. Vols.
Major Eugene Hawkins, Surgeon Ind. N.G.
Colonel Valéry Havard, Assistant Surgeon General U.S. Army.
Lieutenant Colonel Julius F. Henkel, Chief Surgeon Mich. N.G.
Major Vernon J. Hooper, Surgeon Mich. N. G.
Captain James B. Hungate, Assistant Surgeon Neb. N.G.
Major Daniel W. Iford, Surgeon Ohio N.G.
Brevet Major Arthur R. Jarrett, Assistant Surgeon N.G.N.Y.
Lieutenant Colonel Nathan S. Jarvis, Brigade Surgeon N.G.N.Y.
Captain D. A. Jay, Assistant Surgeon Ia. N.G.
Major Homer F. Jones, Surgeon Ind. N.G.
Major Samuel W. Kelley, Brigade Surgeon U.S. Vols.
Captain Vertner Kenerson, Assistant Surgeon N.G.N.Y.

MINUTES OF THE FOURTEENTH ANNUAL MEETING. 379

Brig. Gen. George H. Kenyon, Surgeon General of Rhode Island.
Major Simon Pendleton Kramer, Surgeon U.S. Vols.
Major Oscar Le Seure, Brigade Surgeon U.S. Vols.
Acting Assistant Surgeon Anita Newcomb McGee, U.S. Army.
Major Donald Macrea, Jr., Surgeon Ia. N.G.
Major William Battle Malone, Surgeon Tenn. N.G.
Acting Assistant Surgeon William Henry Marsh, P.H.&M.H.S.
Captain James E. Mead, Assistant Surgeon Mich. N.G.
Major Ralph W. Montelius, Surgeon N.G. Pa.
Major Charles B. Nancrede, Chief Surgeon U.S. Vols.
Major William T. Newkirk, Surgeon U.S. Vols.
Colonel James B. O'Neill, Surgeon General of Maine.
Passed Assistant Surgeon Delos L. Parker, U.S. Navy.
Captain Edward W. Peet, Assistant Surgeon Mich. N.G.N.Y.
Brigadier General William E. Putnam, Surgeon General of Vermont.
Lieutenant William W. Reno, Assistant Surgeon U. S. Army.
Lieutenant Colonel Henry Richings, Brigade Surgeon Ill. N. G.
Major Buell S. Rogers, Surgeon Ill. N. G.
Captain Jesse Rowe, Assistant Surgeon Ill. N. G.
Contract Surgeon James C. Rutledge, U. S. Army.
Major Louis L. Seaman, Surgeon U. S. Volunteer Engineers.
Colonel Nicholas Senn, Surgeon General of Illinois.
Lieutenant Colonel Walter A. Smith, Medical Director, Mass. V. M.
P. A. Surgeon Burt R. Shurly, N. B. Mich. N. G.
Major Edgar Francis Sommer, Surgeon Ind. N. G.
Captain Myles Standish, Ambulance Corps M. V. M., Retired.
Captain Samuel Cecil Stanton, Assistant Surgeon Ill. N. G.
Major Carlton E. Starrett, Surgeon Ill. N. G.
Surgeon Charles Francis Stokes, U. S. Navy.
Brigadier General Alexander J. Stone, Surgeon General of Minnesota.
Major G. Lane Taneyhill, Surgeon, Retired, Md. N. G.
Acting Assistant Surgeon William T. Thackeray, U. S. Army.
Major Charles Henry Todd, Surgeon Confederate Army.
Acting Assistant Surgeon Frederick Townsend, P.H.&M.H.S.
Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S.
Lieut. Col. Wilbur S. Watson, Assistant Surgeon General of Connecticut
Major Frederick C. Weaver, Surgeon Ohio N. G.
Colonel Joseph K. Weaver, Surgeon General of Pennsylvania.
Acting Assistant Surgeon Nelson Walton Wilson, U.S. Army.
Medical Director John Cropper Wise, U. S. Navy.
Major Alfred Conard Wood, Surgeon N. G. Pennsylvania.

DELEGATES.

Lieutenant Colonel Arthur T. Bown, Indian Medical Service.
Surgeon Chung Wan Pang, Chinese Army.

Major E. B. Echlin, Canadian A.M.S.
Lieutenant Colonel J. T. Fotheringham, Canadian A.M.S.
Fleet Surgeon Ho Kan Yuen, Chinese Navy.
Colonel Henri Mareschal, French Army.
Lieutenant Colonel Alejandro Ross, Mexican Army.
Colonel W. J. R. Rainsford, Royal Army Medical Corps.
Surgeon General Shigemichi Suzuki, Imperial Japanese Navy.
Fleet Surgeon J. Lloyd Thomas, Royal Navy.
Major Tsui Ying Yang, Surgeon Chinese Army.

FIRST SESSION, TUESDAY, MORNING, SEPTEMBER 26, 1905.

IN the absence of Surgeon General Walter Wyman, of the Public Health and Marine Hospital Service, the President, the fourteenth annual meeting of the Association of Military Surgeons of the United States was called to order by the First Vice President, Lieutenant Colonel Albert Henry Briggs,



Lieut. Col. Albert H. Briggs,
First Vice President.

N. G. N. Y., of Buffalo, at 10:30 A. M. Tuesday, September 26, 1905, in the Ordinary of the Hotel Cadillac, a handsome, marble walled room, which had been appropriately and beautifully decorated, by the Committee of Arrangements, with the flags of all nations, palms and potted plants.

The first business was the report of the President.

THE SECRETARY: There is no formal report from the President. He sends his regrets that he is obliged to be absent on account of the yellow fever situation in the

south. He also states that this Association delights his heart more and more, and that he takes more pleasure in attending its meetings than those of any other organization.



The Association Photograph for 1905.

The original is twenty-one by sixteen inches in size and shows the faces of the members with remarkable distinctness. Copies of this large original may be obtained from C. M. Hayes, Photographer, Detroit, Mich.

THE REPORT OF THE EXECUTIVE COUNCIL was then read by the Secretary, showing an increase of membership during the year of 185. It recommended for election to Corresponding Membership: Lieutenant Colonel Alejandro Ross, Mexican Army; Director General Baron Saneyoshi, Imperial Japanese Navy; Surgeon General Baron Takaki, Retired, Imperial Japanese Navy; Surgeon General S. Suzuki, Imperial Japanese Navy; Colonel W. J. R. Rainsford, R.A.M.C.; Fleet Surgeon J. Lloyd Thomas, R.N.; Lieutenant Colonel A. T. Bown, I.M.S.; Dr. Chung Wen-pai, Chinese Army; Major Tsui Ying Yang, Chinese Army; Surgeon Ho Kan Yuen Chinese Navy; Lieutenant Colonel J. T. Fotheringham, Canadian A.M.S. It also recommended the rejection of the proposition to amend the Constitution by reducing the annual dues to \$2.00 per annum and presented the following resolutions for adoption,—

Resolved, (1) that the Association of Military Surgeons of the United States hereby expresses its entire approval of and earnestly urges the enactment of the bill to increase the efficiency of the Medical Department of the United States Army, which bill was submitted by the Secretary of War to Congress at the last session,—

Resolved, (2) that a copy of these resolutions be furnished to the Military Committees of the Senate and House of Representatives of the United States.

On motion the report of the Executive Council and its recommendations were unanimously adopted.

THE SECRETARY AND EDITOR then reported continued growth of the Association and development of the JOURNAL; a careful canvass during the year of the entire field of eligible candidates for membership, recommending that as the field for new members had been nearly exhausted a credit of \$50.00 a month be placed at the Editor's disposal from the treasury, for publication purposes; announcing the publication during the year of something more than 51,000 pieces of printed matter, including a book containing the collected sketches of the Surgeon Generals of the Army; the receipt during the year of \$4,916.53 with an expenditure of \$3,892.94, leaving a balance of \$1,023.59; and noted great promise for the future development of the Association.

On motion the report was approved and the recommendation adopted.

MINUTES OF THE FOURTEENTH ANNUAL MEETING. 383

THE TREASURER, MAJOR HERBERT A. ARNOLD, N.G.Pa., made his annual report showing total receipts of \$9,443.33 with an expenditure of \$3,981.61, leaving a balance of \$5,461.72, together with insignia valued at \$278.00.

He noted the fact of an apparent reduction in the amount of balance as compared with last year, but accounted for this by the unusual and extraordinary expenses of the St. Louis meeting, the republication of Vol. III, and the fact that at the time of making the report the semi-annual interest on deposits had not yet been received. He remarked that never before, in the history of the Association, were the dues of the members so fully paid up, 950 being fully paid as against 600 of last year.

On motion this report and also that of the Secretary was referred to an auditing committee for audit.

The President then appointed the following members as the Auditing Committee for the accounts of the Secretary and the Treasurer: Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S., Surgeon C. F. Stokes, U.S.N., and Colonel J. K. Weaver, N.G.Pa.

Assistant Surgeon General GEORGE TULLY VAUGHAN, P.H. & M.H.S., Chairman of the LITERARY COMMITTEE reported: The Literary Committee has done the best it could in getting up the program, and the result is now in your hands. I want to express my thanks to Surgeon Charles F. Stokes, U.S.N., Major Charles M. Gandy, U.S.A., Captain Vertner Kenerson, N.G.N.Y., and Major James Evelyn Pilcher, U.S.A., for their able assistance. The report was on motion adopted.

THE REPORT OF THE PUBLICATION COMMITTEE was read by Major James Evelyn Pilcher, the Chairman, recited the work of the year and was on motion accepted.

THE REPORT OF THE NECROLOGY COMMITTEE was read by the Chairman, Captain Samuel Cecil Stanton, I.N.G., showing the death of the following members during the year: Colonel O. Wellington Archibald, N.D.N.G.; Captain William O. Davies, U.S.V.; Captain Guy C. M. Godfrey, U.S.A.; Surgeon Samuel H. Griffith, U.S.N.; Surgeon Hatton N. T. Harris, U.S.N.; Captain William Hendry, O.N.G.; Major Abner D. Kimball;

Major John P. Lombard, M.V.M.; Dr. Frederick W. Richardson, U.S.A.; Lieutenant Clarkson C. Schuyler, N.G.N.Y.; Major William C. Shannon, U.S.A.; Brigadier General Charles Smart, U.S.A.; Lieutenant Colonel John Williams Streeter, I.N.G.; Captain Walter L. Taylor, O.N.G.; Generalarzt Karl Eduard von Fichte, Württemberg Army; Major Joseph B. Whiting, Jr., W.N.G. The report was adopted by a rising vote.

THE SECRETARY reported, on behalf of the TRANSPORTATION COMMITTEE: The presiding officer entrusted the matter of the arrangements for transportation to the Secretary, and, as the Secretary had nothing else to do, he was glad to do the work in addition to the few trifles he was already carrying; the necessary authority was obtained from the various railroad associations for the usual fare-and-a-third rate, and it has been arranged that the certificates be turned in to the clerk at the door. They will be validated tomorrow, and will be ready for distribution Wednesday afternoon and Thursday morning, provided we have one hundred certificates.

THE PRESIDENT: The duty of arranging for transportation really devolves upon the Secretary of any organization, because it is impossible for one not familiar with the membership as well as the Secretary to do it, and he kindly assumed the duty of informing them of the meeting and obtaining the concessions. This concession is granted under certain conditions. They are that we shall have a hundred certificates, and I trust that we shall be able to pull them through, as we have not yet received a hundred. The roads have waived this requirement before, and I hope the Detroit people will use their influence to have it waived again. Any of you who have certificates must file them as they are void unless duly signed. On motion the report of this committee was adopted.

LIEUT. SAMUEL C. GURNEY, M.N.G., reported on behalf of the COMMITTEE OF ARRANGEMENTS: Since last October we have had twelve meetings. There are six members of this committee: Lieut. Col. J. F. Henkel, M.N.G.; Surg. H. W. Austin, P.H.&M.H.S.; Major C. M. Gandy, U.S.A.; Major V. J. Hooper, M.N.G.; Captain J. E. Mead, M.N.G., and myself. We

have planned so that the time taken for pleasure will not interfere with the papers. This afternoon at 4 o'clock there will be a tally-ho ride around the city, parks and boulevards, and we want all the members and their wives and ladies to come. Tonight there will be a reception from 8 to 9 o'clock and the public meeting afterward. A trip to Parke, Davis & Co's laboratories will be taken tomorrow afternoon. Street cars will be at the hotel and will convey you there and return.

During the session tomorrow afternoon the ladies will go to the art museum where Prof. Griffith will give a lecture. Wednesday night there will be a theatre party at 8 o'clock at the Temple Theatre for which tickets will be given you. Thursday there will be a trolley ride, and Friday the U. S. Government has allowed us the use of a revenue cutter and we will go to the St. Clair Flats and take dinner at the Marshland Club, and return at 5 p. m. We have all done this work willingly and pleasantly, and would be glad at any time to do it again for the entertainment of the Association. The report on motion was adopted.

Medical Director ROBERT A. MARMION, U.S.N. reported for the COMMITTEE ON LEGISLATION, the passage of a bill for the establishment of an Army General Hospital in Washington.

The COMMITTEE ON PERMANENT INTERNATIONAL CONGRESS OF MILITARY SURGEONS reported through Surgeon General NICHOLAS SENN, I.N.G., on the progress of its work.

THE PRESIDENT: I wish at this point to introduce Major Charles Henry Todd, of Kentucky. He is the representative from Kentucky, and the President of the Association of Medical Officers of the Army and Navy of the Confederacy. He appears in his old Confederate uniform. I take great pleasure in introducing Major Todd.

Major CHARLES HENRY TODD: Mr. President, and Gentleman of the Association of Military Surgeons of the United States: It gives me great pleasure to be present with you on this occasion, and I esteem it a very high honor to be invited to your platform. It has been a wish since my earliest childhood that I might visit the beautiful and historic city of Detroit, which was won by the blood of Kentuckians on many battlefields. Pardon me for be-

coming personal. I am the youngest grandchild of Isaac Shelby who was a Lieutenant in his father's company. During colonial days, two years before the Revolution, on October 10, 1774, Virginians and North Carolinians fought against the Indians commanded by that famous Indian chief, Cornstalk. Late in the afternoon, when the result of the battle was in doubt and everything looked dark, young Shelby went in the rear of the Indians with his company and raised a war whoop, and the Indians stampeded thinking the whites had been reinforced. This victory led to the settlement of Kentucky and the northwest, which checked the inroads of the Indians during the Revolution. Without this victory, when peace was declared in 1783, the colonies would have found the Alleghenies the western boundary and not the Mississippi river. Shelby commanded on October 7, 1780, the decisive battle of the American Revolution. Here it was demonstrated that the backwoodsman and hunter was more than a match for the British. Isaac Shelby was elected the first governor in 1792. When General William Henry Harrison made his request for volunteers, 4,000 Kentucky hunters and backwoodsmen rendezvoused at Newport, where, led by Shelby at the battle of the Thames on October 5, 1813, they crossed the Canadian border and gave peace to Detroit. I am the son of C. S. Todd, who was aide-de-camp during the war of 1812 on the staff of General William Henry Harrison, and was at the battle of the Thames. In 1783 the Revolution ended and peace was declared, but Detroit was not evacuated until 1796 when Fort Shelby (named after Isaac Shelby) was erected in this city.

Mr. President, God will bless Surgeon General Wyman for the humane and merciful work he is doing during this terrible epidemic of yellow fever. His work is not alone for New Orleans and the South, but for the benefit of the whole human race, which will place his name high on the escutcheon of fame.

This is the proudest and happiest day of my life as I stand before you as the representative of Kentucky.

THE SECRETARY: I think that these remarks of Major Todd, a distinguished Confederate officer, deserve some special recognition on our part. He is now a member of our own Asso-

ciation, having been elected last evening. I would move you then that in recognition of the wiping away of the blood stains between the North and the South, and of the renewed bond of friendship that now exists, we welcome Major Todd to our membership by a rising vote. Carried.

The Secretary here read an invitation from Major Charles M. Gandy, U.S.A., for the members of the Association to visit Fort Wayne.

REPORT ON THE ENNO SANDER PRIZE COMPETITION. Colonel JOSEPH K. WEAVER, N.G. Pa.: As one of the members of the Enno Sander Prize Board of Award, I have to announce that there have been no papers presented. We would recommend that the competition be continued until next year. Carried.

THE TREASURER: The medal is in the hands of the Treasurer and will be held until next year. It can be seen here and should act as an incentive.

THE REPORT OF GENERAL GEORGE M. STERNBERG U.S.A., Chairman of the Seaman Prize Board of Award, was presented by Medical Director JOHN CROPPER WISE, the senior member of the Board present, announcing the award of the prize to the competitor whose essay was designated by the nom de plume, "Andol," with honorable mention to, those authenticated by the noms de plume of "Jon Kibbi," "Optimist," and "All Abba."

THE PRESIDENT: The Secretary will now open the envelopes and announce the names.

THE SECRETARY: "Andol" is Major Jefferson Randolph Kean, of the U.S. Army. First honorable mention to Major Fred. Smith, of the Royal Army Medical Corps, who signed himself "Jon Kibbi." Second honorable mention to Major C. E. Woodruff, U.S.A., and Lieutenant F. J. Woodbury, U.S.A. whose contribution was signed "Optimist." Third honorable mention to Assistant Surgeon W. C. Rucker, P.H.&M.H.S. who submitted the paper signed "All Abba."

THE PRESIDENT: Major Kean not being present, I will ask Major W. C. Borden, U.S.A. to read the prize winning paper.

An abstract of the essay on "The Prevention of Disease in the Army and the Best Method of Accomplishing that Result," by Major Jefferson Randolph Kean, Surgeon U.S. Army, was then read for the author by Major William C. Borden, U.S.A.

Major Seaman after the reading of the paper handed to Major Borden a check for five hundred dollars to be given to Major Kean.

The hour for calling the session to order each morning thereafter was set at nine o'clock instead of 10:30, on account of the many demands upon the time of the Association.

SECOND SESSION, TUESDAY AFTERNOON, SEPTEMBER 26
1905.

THE meeting was called to order by the Vice-President, Lieutenant Colonel A. H. Briggs, N.G.N.Y., at 2 P. M.

A paper on Routine Instruction to the Hospital Corps of the National Guard, by Major William G. Bissell, Surgeon, N.G.N.Y., was read by title.

A paper on a New Hypodermic Syringe was read by Lieutenant William W. Reno, U.S.A., and discussed by Major Alfred C. Wood, N.G.Pa.

A paper on the Efficiency of the Enlisted Man of the Hospital Corps, with Especial Reference to the National Guard, was read by Major George M. Coates, N.G.Pa., and discussed by Captain Myles Standish, M.V.M., Lieutenant Colonel Leonard B. Almy, Conn.N.G., Major Edgar F. Sommer, Ind.N.G., Major Buell H. Rogers, Ill.N.G., Surgeon Charles F. Stokes, U.S.N., Major Arthur R. Jarrett, N.G.N.Y., and Lieutenant Colonel Nathan S. Jarvis, N.G.N.Y.

A paper on the Plan proposed for a Brigade Hospital on a Tour of Field Service and the Realization Attained, by Lieutenant Colonel Eugene A. Smith, Brigade Surgeon, N.G.N.Y., was read by title.

A paper on A Plea for the Unification of the Duties of Medical Officers of the Army and Navy, was read by Surgeon Charles F. Stokes, U.S.N., and discussed by Dr. Anita Newcomb McGee, U.S.A., Major George H. Halberstadt, N.G.Pa., and Lieutenant Colonel Nathan S. Jarvis, N.G.N.Y.

The following papers were then read by title:

The Service of Negroes in Hospital Corps Detachments. By Captain J. H. Ford, U.S.A.

A Few Minor Details to be Observed on Board Ship Preparatory to Going into Action. By Surgeon Joseph C. Thompson, U.S.N.

The Application of Laboratory Methods on Board Ship. By P. A. Surgeon Alfred W. Balch, U.S.N.

Organization for Instruction in Colonial Medicine. A translation from the French of Brouardel and Wurtz. By Surgeon Sheldon G. Evans, U.S.N.

A Much Needed and Easily Effected Reform in Camp Sanitation. By Assistant Surgeon Norman Roberts, P.H.&M.H.S.

A paper on Dangers of Typhoid Urine in Camp was read by Captain Charles S. Butler, M.V.M.

An Emergency Case for Field Work was described by Lieutenant Colonel Leonard B. Almy, C.N.G., and discussed by former Acting Assistant Surgeon William T. Thackeray, U.S.A.

A Mexican Transport Model for Carrying the Wounded in Mountainous Countries was then described by Lieutenant Colonel Alejandro Ross, Mexican Army.

THIRD SESSION, PUBLIC MEETING, TUESDAY EVENING,
SEPTEMBER 26, 1905.

THE meeting was called to order at 9:15 P.M. with Lieutenant Samuel Charles Gurney, Secretary of the Committee of Arrangements, in the chair

The invocation was pronounced by the Rev. Spenser B. Meeser, D.D., of the Woodward Avenue Baptist Church in Detroit.

The Chairman read a letter of regret from the Hon. Fred M. Warner, Governor of Michigan, and announced, as speaking in his place, the Hon. Edwin P. Denby, M.C., who briefly but eloquently addressed the Association upon "The State of Michigan."

The Hon. George P. Codd, Mayor of Detroit, extended

a brief but cordial welcome upon the part of the City of the Straits.

The Hon. Russell A. Alger, United States senator from Michigan, who was to have spoken upon "Michigan in War,"

sent his regrets that he was detained by sickness from participating in the meeting, and Colonel R. W. Jacklin interestingly addressed the Association in his stead.

Colonel H. Mareschal of the French Army addressed the meeting in charming and idiomatic French on behalf of the Republic of France.

Letters were then read from the Hon. William C. Maybury, formerly Mayor of Detroit, who was to have spoken upon "Detroit as a Host," and from the President of the Association, Surgeon General Walter Wyman, P.H. & M H.S., who was unavoidably detained by reason of the pressure of work consequent upon the yellow fever epidemic in New Orleans.



Lieutenant Samuel Charles Gurney,
Chairman of the Public Meeting.

In place of the President's annual address however, Surgeon General S. Suzuki of the Imperial Japanese Navy, after speaking on behalf of the foreign delegates, gave a superb stereopticon exhibition of Japanese military medical conditions and of wounds and their treatment by the Japanese in the recent war in the Orient.

Interspersed among the professional views were included numerous scenes of a popular character, adapting the exhibition to the non-professional portion of the audience as well as to the members of the Association.

FOURTH SESSION, WEDNESDAY MORNING, SEPTEMBER 27,
1905.

THE meeting was called to order at 9 A.M., by Vice President Albert H. Briggs when the following papers were read:

A New Type of First Aid Dressing. By Surgeon Charles F. Stokes, U.S.N.

A Series of First Aid Packets. By Major George H. Halberstadt, Brigade Surgeon, N.G. Pa. The paper was discussed by Surgeon Charles F. Stokes, U.S.N.

Some New Suture Materials were displayed by Colonel Nicholas Senn, I.N.G.

A Proposed Regimental Medical Supply Table for the National Guard, was presented by Captain Samuel Cecil Stanton, I.N.G.

The paper was discussed by Major George H. Halberstadt, Colonel J. K. Weaver, Major James Evelyn Pilcher, Major Thomas E Carmody, Major Homer F. Jones, Major Thomas C. Clark, and Captain James B. Hungate.

The following papers were read by title:

A Field Service Tourniquet. By Lieutenant Haywood S. Hansell, U.S.A.

Some Observations concerning Controlling of Epidemics. By Major Edward Champe Carter, U.S.A.

Major CHARLES H. TODD, late C.S.A. asked for the floor, and his request being granted, remarked: I want to express my grateful thanks for the cordial and royal reception you have given me. In 1862 General Stonewall Jackson was in Winchester, and the Federal General in leaving had left seven surgeons with their wounded and sick. He said to them, "Remain where you are and you shall have all you want. All I ask of you is not to leave the town for fourteen days and then go to Washington." At the battle of the Monocacy, July 9, 1864, Jackson engaged Wallace. Dr. Hunter McGuire, Jackson's chief surgeon gave me an order to remain with my assistants and that he had ordered all the wounded to Frederick, Md. Upon the arrival of the Federals,

I assured them that we were friends. Their surgeon was Dr. Robert F. Weir of New York. At once we rapidly arranged to take charge of the wounded. He took charge of the Federals and I took the Confederates in charge. I was given this letter which I read:

"General Hospital, Frederick, Md., July 29, 1864.

Doctor: By order of the Commanding General, I will tomorrow send to you the rebel surgeon and a chaplain left by the enemy after the battle of the Monocacy. I desire also to request in their behalf any assistance that you can render. Dr. Todd took charge of the hospital while the enemy were here and extended every possible courtesy, not only to the medical officers but to the patients; and he himself and his colleagues, during their stay here have acted in such a gentlemanly way that I am anxious to secure for them every possible consideration while within our lines. Trusting that you may be able to aid them, I am Very truly yours, Your obedient servant R. F. WEIR, Ass't Surg. U.S.A. in charge Hospital.

To Surg. J. Simpson, U.S.A. Med. Dir. 8th Army Corps, Baltimore, Md."

I delivered this letter in person the next day. I was not imprisoned. I delivered it to Dr. Simpson, and he asked me about his old friends. We sat together about a half hour and I asked him if he would not return to me that letter. He did so with the following endorsement.

"Med. Dir. office Middle Department 8th A. C. Balto., July 30, 1864.

Respectfully returned to Surgeon C. H. Todd, 6th La. Reg't, at his own request. J. SIMPSON, Surg. U.S.A., Med. Dir."

We remained in Baltimore and the next day a young man came to us and we went to Fort Monroe, where on August 8, 1864, I received the following letter:

"Office of the Provost Marshal, Headquarters Dept., Va., and N. C.
Fort Monroe, Va., Aug. 8, 1864.

Dr. Todd and others of the C.S.A. Gentlemen: The flag of truce boat leaves for port of exchange this noon. You will please report at this office without delay. Very respectfully yrs, D. W. KELLY, Lt. in charge, Provost Marshal,"

Your Association before you adjourn, please appoint a delegation of your whole body and come to New Orleans as the guest of the Association of Medical Officers of the Army and Navy of the Confederacy, and you will have a cordial greeting. [Applause].

A paper was then read on Experiences during the Russo-Japanese War, by Surgeon General S. Suzuki, I.J.N.

MAJOR T. C. CLARK, of Minnesota: I move a resolution of thanks to be sent to the Japanese government for sending the distinguished surgeon, Surgeon General Suzuki, and our thanks to him for presenting to us this most valuable paper on the greatest naval engagements in modern times. Carried.

Admiral Suzuki's paper was then discussed by Medical Director John C. Wise, U.S.N., Surgeon Charles F. Stokes, U.S.N., and Fleet Surgeon J. Lloyd Thomas, R.N.

The subject was then closed by a Discussion on the Use of Stretchers on Board War Ships, by Surgeon General S. Suzuki, I.J.N., which was discussed by Surgeon Charles F. Stokes, U.S.N.

A paper upon Military Headgear in its Relation to the Health of the Soldier was then read by Contract Surgeon Harold D. Corbusier, U.S.A.

The following papers were read by title:

"A Sure Cure for Asthma." By Dr. Alfred T. Short, U.S.A.

The Question of the Origin of the Lues Venerea among the Conquistadores in Mexico. By Captain Henry DuR. Phelan, U.S.V.

Medical and Surgical Observations during a Three Years Tour of Duty in the Philippines. By Major John M. Banister, U.S.A.

Military Medical Heroism. By Major James Evelyn Pilcher, U.S.V., Captain, Retired, U.S.A.

Presentation of Insignia to Foreign Delegates.

MAJOR JAMES EVELYN PILCHER, SECRETARY.—Will Dr. Chung, Major Tsui, Dr. Ho, Colonel Bown, Colonel Fotheringham, Dr. Thomas, Colonel Rainsford, Colonel Ross and Admiral Suzuki please step forward?

The foreign delegates mentioned then proceeded to the open space in front of the platform and received diplomas of Corresponding Membership and the insignia of the Association with the following remarks:

THE SECRETARY.—The United States of America in chartering this Association recognized it as a point of union for the

military surgeons of the world, As I have previously remarked upon similar occasions, though hostilities may exist between nations there is never war between the wounded nor bloody conflict between the representatives of the medical department. We are brothers in action at all times. For many years this Association has been in the habit of inviting representatives of foreign medical services to its sessions, and to further cement the bond of brotherhood between us, it has been customary to elect the officers sent to us as Corresponding Members in the Association and to present each one with the insignia of our organization. In pursuance of this policy then, at the recent meeting of the Executive Council of the Association, you were all elected to Corresponding Membership.

Dr. Chung, Major Tsui and Fleet Surgeon Ho.—We are glad to know from the facts that you have brought to us from the Middle Kingdom that the Celestial Empire has at last awakened to the western methods of treatment of the sick and injured among her troops. We are proud that in pursuance of this new policy you have been sent first to this Association, thence to make further investigations as to the best means of military sanitation throughout the nations of the occident. I have pleasure then in handing you, as the first representatives of your great country to appear among us, the insignia and diploma of membership of this Association.

Lieutenant Colonel A. T. Bown, I.M.S.—We have with us for the second time in our history a representative of the great Indian Empire, that vast body which has made the British flag to float all about the world. Our own colonial possessions have given us many features of service in common with your own and have brought our services into closer touch than ever before. We welcome you then and in recognition of the courtesy of the Indian Medical Service we have pleasure in conferring upon you our diploma of Corresponding Membership and this insignia.

Lieutenant Colonel J. T. Fotheringham, Canadian A.M.S.—I have just said, Sir, that the British flag floats all about the world. It comes so near to us that today only a few hundred yards separate us from one of her widest dominions. The affec-

tion which we as citizens of neighboring commonwealths feel toward one another lends particular pleasure to the agreeable duty which now devolves upon me of presenting you with the diploma of Corresponding Membership in our Association and in decorating you with its insignia.

Fleet Surgeon J. Lloyd Thomas, R. N.—While the British flag may float upon land along a great belt encircling the earth and the sun may never set upon England's possessions,—we can not fail to recognize that for centuries it has been truly said that
"Brittania rules the waves."

From the Elizabethan naval battle with the Spanish Armada down to the present time, the English fleets have scoured the seas in all directions, and through the earnest and able work of their medical officers have secured great advances in naval surgery, hygiene and medical practice; and so, Sir, we have great pleasure in presenting you with this diploma of membership in our Association and in placing this insignia upon your breast.

Colonel W. J. R. Rainsford, R.A.M.C.—The great nation of which I have spoken is close to us in many ways; we have practically the same national hymn,—the air is identical, only the words differ. We are particularly glad then to have all the branches of her medical services with us. Our relations with the English Army have for years been close and cordial. We have awarded prizes in our scientific competitions to her able representatives, we have honored her distinguished officials and today, Sir, we have particular pleasure in adding you to the number of friends in your service whom we personally know and in presenting you with the diploma of Corresponding Membership and the insignia of the Association.

Colonel Alejandro Ross.—We have still another neighbor, a neighbor upon the south, one who is rapidly growing in influence and power. Mexico has not failed to be represented among us for more sessions than I can stop to enumerate. We are proud today that its government has sent one of its most distinguished medical officers, a member of the Administrative Staff of her Army, a Professor in her Military Medical School, and in honoring you Sir, as a representative of the Mexican government, by

presenting you with this diploma and the insignia of the Association, we are doing ourselves a great pleasure.

COLONEL ALEJANDRO ROSS —On behalf of Mexico, I desire to express my deep sense of gratitude.

THE SECRETARY (continuing).—In these days the world has grown very small. The little islands in the Japan Sea were unknown to us not so very many years ago. Japan is now one of the leading nations of the world. We who listened to the magnificent paper of yesterday can realize what Japan is and what her future is to be. We are proud that for the first time in the history of the world a Japanese Surgeon General has been sent out to give information to the nations concerning the superb surgical conduct of her service and that this Association has been made the channel through which the information is to be disseminated.

Surgeon General S. Suzuki, I.J.N.—We can not appreciate too profoundly the great courtesy and honor displayed in sending to us a Surgeon General of the Imperial Japanese Navy, and it is with particular pleasure that we are enabled to confer in person upon you the diploma of Corresponding Membership and the insignia of the Association. We wish further to recognize the work Japan has done in naval sanitation and medicine and we beg therefore to entrust to your hands this diploma of Corresponding Membership for your Chief, Baron Saneyoshi. We have recognized further the great work done by your medical men and in particular the splendid accomplishments of Baron Takaki, in the control of beri-beri and in other directions, by the election also of your distinguished compatriot to Corresponding Membership, in evidence of which I hand you this diploma.

And now we thank you all for your presence with us and trust that you may derive some benefit from our proceedings. We assure you that should this be the simple forerunner of many years of cordial relations between your nations and our own, your successors as delegates to our meetings will all receive as hearty a welcome and as friendly a hand as has ever been extended

to any stranger within our gates, the name of stranger being quickly translated through the alchemy of soldierly friendship into that of brotherhood.

COLONEL W. J. R. RAINSFORD, R.A.M.C.—Surgeon General Suzuki has asked me to reply on behalf of the foreign contingent to the eloquent speech which has been made by your Secretary and to acknowledge the kind way in which you have received us at this meeting. On the part of the delegates present I assure you that we feel deeply the splendid reception we have received from you today. We profoundly appreciate the brotherly friendship which you have unfailingly displayed toward us.

Colonel Henri Mareschal, the delegate from the French army, was already a Corresponding Member of the Association, having been decorated at the meeting in St. Louis in 1904.

FIFTH SESSION, WEDNESDAY AFTERNOON, SEPTEMBER
27, 1905.

THE meeting was called to order at 2 P.M. by Vice President Albert H. Briggs.

A paper entitled Elisha Kent Kane, U.S.N. A Sketch. By Medical Director John C. Wise, U.S.N., was read by title.

A paper entitled, A Brief Sketch of the Evolution of the Medical Service of the British Army, by Colonel W. J. R. Rainsford, R.A.M.C., was read by the author and discussed by Lieutenant Colonel N. S. Jarvis, N.G.N.Y.

Colonel VALERY HAVARD, U.S.A. I want to read by title a paper by Dr. Mareschal of the French Army on the subject of Ambulant or Travelling Kitchens.

Experiences with the Russian Army in Manchuria, were read by Colonel Valery Havard, U.S.A.

The Secretary then announced the representation of the several services in the Nominating Committee and the officers indicated were named as representatives thereon.

Army.....	36	votes, Colonel Havard.
Navy.....	18	" Med. Dir. Wise.
P.H.&M.H.S.....	19	" Surgeon H. W. Austin.
Arkansas.....	1	" Lieut. Col. Bentley.
Colorado.....	1	" Major Carmody.
Connecticut.....	2	" Lieut. Col. Watson.
Illinois.....	5	" Lieut. Col. Richings.
Indiana.....	1	" Major Hawkins.
Iowa.....	1	" Major Fairchild.
Kentucky.....	1	" Captain Grant.
Maine.....	1	" Colonel O'Neill.
Maryland.....	1	" Major Taneyhill.
Massachusetts.....	4	" Lieut. Col. Smith.
Michigan.....	1	" Lieut. Col. Henkel.
Minnesota.....	1	" General Stone.
Missouri.....	2	" General Griffith.
Nebraska.....	1	" Captain Hungate.
New York.....	6	" Lieut. Col. Jarvis.
Ohio.....	4	" Major Weaver.
Pennsylvania.....	4	" Major Halberstadt.
Rhode Island.....	1	" General Kenyon.
Tennessee.....	1	" Major Halbert.
Vermont.....	1	" General Putnam.
Wisconsin.....	1	" Colonel Edwards.

Invitations were received from the following cities desiring the next annual meeting:

Buffalo, N. Y.
Duluth, Minn.
Hartford, Conn.
Milwaukee, Wis.

Colonel N. SENN, Ill. N.G. I move that one delegate from each foreign country represented here be added to the Committee on International Congress. Carried.

THE PRESIDENT. The nominating committee will meet in this room at eight o'clock tomorrow morning.

The following papers were then read by title:

The Initial Examination of the Recruit. By Hugh Hamilton, M.D., Medical Examiner of Recruits, U.S.A.

Effects of Climatic Extremes on the Health of Battleship Personnel. By Surgeon Corben J. Decker, U.S.N.

On the Importance of the Prevention of Infectious Diseases in the Navy, with a Suggestion as to the Prophylactic Treatment

of Some of the Acute Exanthemata. By Medical Inspector Henry G. Beyer, U.S.N.

SIXTH SESSION, THURSDAY MORNING, SEPTEMBER 28, 1905.

THE meeting was called to order at 9 A.M. by Vice President Albert H. Briggs.

A paper was read on Some Physical Effects of Gun Fire, by Fleet Surgeon J. Lloyd Thomas, R.N.

General J. D. GRIFFITH, of Missouri: I have the following resolutions to offer at this point:

Whereas, the abolition of the Army Canteen, in the opinion of those best acquainted with the Army, has resulted in the use of an increased amount of bad liquors by the soldier, resulting in a marked increase of venereal and other diseases, tending to the demoralization of the soldier: and

Whereas, it is found that the anti-canteen law, adds to the number of saloons and brothels contiguous to garrisons, and as a result the monthly stipends are spent "outside" altogether, and

Whereas, no benefit whatever, in any line, has been the result of the abolition of the canteen.

Be it Resolved by this body in session, that we do earnestly request the Secretary of War to use his every effort for the reestablishment of the army canteen, assuring him of our hearty support in every manner.

The resolutions were adopted without dissent.

An address on Observations in Japan was given by former Acting Assistant Surgeon Anita Newcomb McGee, U.S.A., and discussed by Colonel Valery Havard, U.S.A., General J. D. Griffith, N.G.Mo., Surgeon General S. Suzuki, I.J.N., and Major George H. Halberstadt, N.G.Pa.

A paper on the Real Triumph of Japan, or the Conquest of the Silent Foe was read by Major Louis Livingston Seaman, U.S.V.E.

The following papers were read by title:

Alcohol a Depreciating Factor of Efficiency. By Surgeon George A. Lung, U.S.N.

A Method of Artificial Feeding of Infants in the Tropics. By Lieutenant Leon T. LeWald, U.S.A.

Practical Methods for Purification of Drinking Water. By Brigadier General William H. Devine, M.V.M.

Hearing Affections and Military Service. By Emil Amberg, M.D.

The Influence of Free Nasal Respiration; the Need of Nasal Respiration for the Greatest Efficiency of the Individual. By Major William Sohler Bryant, U.S.V.

Malaria and Mosquitoes at Lucena Barracks. By Captain Henry Page, U.S.A.

Beri beri or Alcoholic Neuritis? By Passed Assistant Surgeon J. S. Taylor, U.S.N.

Beri beri and Dhobie Itch. By Dr. Julius M. Purnell, U.S.A.

Beri beri at the St. Louis World's Fair. By Captain Llewellyn F. Williamson, U.S.A.

Difficulties in the Diagnosis of Yellow Fever as Seen on the Isthmus. By Passed Assistant Surgeon Holcomb C. Curl, U.S.N.

Note on Dermatitis Noxialis. By Passed Assistant Surgeon Allan Stuart, U.S.N.

A Virulent Outbreak of Tuberculosis in a Gurkha Regiment. By Colonel H. Hamilton, C. B., Indian Medical Service.

The Anatomical Characters of *Opisthorchis Sinensis* and the Statistics of its Occurrence in the United States. By Passed Assistant Surgeon M. J. White, P. H. & M. H. S.

Hernia as a Disability among Sailors. The Operation for the Radical Cure with a Report of Cases. By Surgeon H. W. Austin, P. H. & M. H. S.

A Case of Perforating Gunshot Wound of the Abdomen with Nineteen Perforations; Operation with Recovery. By Passed Assistant Surgeon J. H. Iden, U.S.N.

The Training of Medical Officers of the National Guard from a Regular Army Standpoint. By Major Frederick P. Reynolds, U.S.A.

SEVENTH SESSION, THURSDAY AFTERNOON, SEPTEMBER 28, 1905.

THE meeting was called to order at 2 o'clock, P. M. by Vice President Albert H. Briggs.

The paper of Major Seaman, read at the morning session was discussed by Surgeon Charles F. Stokes, U.S.N., Major W. C. Borden, U.S.A., General J. D. Griffith, N.G. Mo., Captain Charles S. Newkirk, Mich. N. G., Major Carleton E. Starrett, I.N.G., Major Simon P. Kramer, U.S.V., Colonel W.

J. R. Rainsford, R.A.M.C., Major T. C. Clark, Minn. N.G., and Dr. Anita Newcomb McGee, U.S.A.

Some Observations in Japan, were then read by Surgeon William C. Braisted, U.S.N., and discussed by Surgeon General S. Suzuki, I.J.N.

At this point the chair was assumed by General J. D. Griffith, N.G. Mo.

A paper on the Results of Examination of Recruits for the National Guard was read by Major Charles Adams, I.N.G.

The following papers were then read by title.

Traumatic Neurasthenia. By Captain Vertner Kenerson, Assistant Surgeon N.G.N.Y.

Otitis Media and Mastoiditis as a Sequel of Influenza. By Lieutenant Charles D. Center, I.N.G.

Gonorrhoea and its Treatment from the Standpoint of a Military Surgeon, with Especial Reference to the Sequelae. By Lieutenant Robert M. Thornburgh, U.S.A.

The Treatment of Gonorrhoea by Irrigation. By Dr. William Grey Miller, U.S.A.

The Value of Scopolamin Morphine as a General Anesthetic. By Major Alfred C. Wood, N.G. Pa.

Personal Experiences in Spinal Analgesia and its Application to Military Surgery. By Captain Henry D. Thomason, U.S.A.

The Treatment of Fractured Ribs. By Surgeon R. M. Woodward, P.H.&M.H.S.

Inguinal Adenitis. By Surgeon George Rothganger, U.S.N.

A Case of Peritoneal Wound. By Captain William H. Wilson, U.S.A.

Liver Abscess; Six Cases; with Special Reference to the Etiological Importance of *Ascaris Lumbricoides*. By Surgeon James Farquarson Leys, U.S.N.

A paper on Gunshot Wounds of the Abdomen was then read in part by Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S., and discussed by Dr. Harold D. Corbusier, U.S.A. and General J. D. Griffith, N.G. Mo.

DR. W. P. CHUNG of China: I am sorry to say that I have nothing in the form of a paper, but I would like to say a few words. I, as one of the delegates from China, and in behalf of

our government, convey the greeting of the Empress to you. I am glad to say that we have enjoyed the meeting here and appreciate the privilege of being here, that we have received much benefit from the papers and discussions and we want to give our thanks to the contributors of them. China is only in her infancy as to modern medicine and surgery; it has been introduced into the army and navy, but it is only in its beginning. I hope that not only will we receive much benefit here but I hope that we will receive much good in visiting the different hospitals and colleges in this country and Europe. I hope to receive the publication of this Association so that we will get still more benefit.

Assistant Surgeon General GEORGE TULLY VAUGHAN, P.H.&M.H.S., reported on behalf of the Auditing Committee: This committee has examined the accounts of the Secretary and the Treasurer, and they have been found correct, and properly vouched.

MAJOR THOMAS C. CLARK, Minn.N.G: I rise to perform the function I have performed for the last fourteen years I have been in this Association,—to acknowledge the good time and the courtesy we have received in Detroit, for I can say, after fourteen years experience, that the meeting here has been one of the most successful we have ever held. This meeting has been most truly representative of the best element of those interested in our subject. It has also been the best attended. In speaking on my own behalf, and I voice the sentiments of the Association, this meeting will go into history as the best ever held. That these sentiments may be a matter of record, I wish to offer a series of resolutions of thanks:

Resolved, That the cordial thanks of this Association are extended:

1. To Lieutenant Colonel Julius F. Henkel, Chairman, Lieutenant Samuel C. Gurney, Secretary, and the other members of the Committee of Arrangements whose labors have contributed so largely to the success of this meeting.
2. To the Hon. George P. Codd, Mayor, and the citizens of Detroit, whose unstinted hospitality has been so graciously displayed toward us.
3. To the Hon. Edwin P. Denby, Lieutenant Colonel R. W. Jacklin and the Rev. Dr. Spenser B. Meeser for their welcome and kindly words.
4. To Surgeon General S. Suzuki, I.J.N., for the superb stereopticon exhibition of the wounded in the naval operations of the Russo-Japanese War.

5. To our beloved Vice President, Lieutenant Colonel Albert H. Briggs, for the courteous and impartial manner in which he has presided over this meeting.

6. To our genial Secretary, Major James Evelyn Pilcher, who has so successfully oiled the machinery of our proceedings, and

7. To our efficient Treasurer, Major Herbert A. Arnold, who has so politely emptied our purses.

I also have great pleasure in proposing the following resolution:

Resolved, That we profoundly regret that our President, Surgeon General Walter Wyman, P.H.&M.H.S., has been detained from attendance upon this meeting by the duties connected with the Bureau over which he so ably presides.

On motion the resolutions were unanimously adapted.

The report of the NOMINATING COMMITTEE was then submitted by Lieutenant Colonel Nathan S. Jarvis, N.G.N.Y., as follows:

For President—Lieutenant Colonel ALBERT HENRY BRIGGS, N.G.N.Y.

1st Vice President—General ROBERT M. O'REILLY, U.S.A.

2nd Vice President—Admiral PRESLEY M. RIXEY, U.S.N.

3rd Vice President—Assistant Surgeon General GEORGE TULLY VAUGHAN, P.H.&M.H.S.

Treasurer—Major HERBERT ALONZO ARNOLD, N.G. Pa.

Place of 1906 meeting—Buffalo, N. Y.

Time of 1906 meeting—To be fixed by the Executive Council.

The Secretary of the Association being a permanent official, no nomination was made, the office, under the constitution, being continuously held by Major JAMES EVELYN PILCHER, U.S.V.

THE CHAIRMAN. I suggest that under the rules and regulations governing this body, the rules be suspended, and the Secretary be instructed to cast a ballot for the Association electing the officers and place of meeting.

MAJOR CLARK. I so move. Carried.

The Secretary reported that he had cast the ballot so ordered.

Major Clark and Major Halberstadt, appointed a committee to conduct the President-elect to the Chair, performed that duty.

MAJOR CLARK. I want to introduce to you a gentleman well known for many years; a man who has always been present at our Association, and has always been chairman of the same committee. God may have made a more lovable man but I doubt it.

THE PRESIDENT-ELECT. There is much I would like to say but I will not do it. But I can say I thank you most sincerely,

and that I do. I consider my election to the position of President of this Association the crowning glory of my modest life. I have been an humble worker for more than a third of a century. I have been a medical officer of the national guard and volunteers for twenty-seven years, I have always taken interest in military matters from the day Fort Sumter was fired on until the present day, and I am under deep gratitude to you for honoring me by giving me this office. I shall do my utmost to help this Association in its upward and onward work. Those who were with us, when this child was lying in its cradle, may see that it has now grown and has reached out; it has not only taken in the Army, Navy and Marine Hospital Service, but it has gone across the ocean, and last but not least, way out in the east have come to us wonderful men, men whom we thought we could teach, and now we take their lessons humbly in sanitary matters.

This Association is destined to live. It has passed the dangers of childhood. I hope it will continue to live and grow and thrive. I hope to see you all in Buffalo next year. We have extended to you the right hand of fellowship. It is seven or eight years ago since you came to Buffalo as strangers, and you left before the city awakened to the fact that you were there. I have letters from our municipal government, from our chamber of commerce and from influential citizens inviting you to our city. We have a beautiful climate. Seldom do we see zero, and the thermometer never rises above 80°. Don't be afraid of our summer. While the summer is cool, the inhabitants are warm.

MAJOR CLARK. I would suggest also that in honor for and in recognition of the long service and the love that we have for the President of this Association, that we get out as many of the Old Guard as we can for the Buffalo meeting. The feeling we have for each other is more like kinship and love; let us be prepared to exchange our photographs next year. I move that the date of the meeting be left to the Executive Council. Carried.

THE PRESIDENT. I wish also to ask every member to bring his wife along with him next year.

MAJOR CLARK. The Buffalo meeting in 1894 was one of the most enjoyable meetings we have had. Anyone who goes to Buffalo next year will have the time of his life.

The Association then on motion adjourned sine die at 5 P. M.

The Public Meeting.

AFTER a general reception in the Oriental Room of the Hotel Cadillac at which the officers and foreign delegates received the invited guests, the assembly repaired to the Ordinary, where the following exercises were conducted, with Lieutenant SAMUEL C. GURNEY, Secretary of the Committee of Arrangements in the Chair.

INVOCATION.

BY THE REVEREND SPENSER B MEESER, D.D.,
OF THE WOODWARD AVENUE BAPTIST CHURCH.

LET us invoke the Divine Blessing. O thou Eternal God who art mind and heart and thou art also Power. We glory in that revelation in itself. Thy word is wisdom and thy duties are our law. We give thee reverent thanks that thou hast made us after thine own image, and to know thy wisdom and understand thy love. Grant unto us thy spirit, that through wisdom we may find our way to thee and so to love our fellowman as thou lovest us and be like thee. Thou who overlookest all nations mercifully and bountifully, we pray thee to shower thy favors upon all people forever. Endow their rulers with wisdom and with love of justice that their rule may be beneficial and their government just. To the President of these United States and to the rulers of all peoples represented here, grant wisdom and eternal truth, that their government may be for the welfare of the people and the glory of God. O thou who healest us of our iniquities, bless the physicians and surgeons gathered here. Honor their work for the benefit of mankind. Make their art of healing an ever increasing good to all. Make them ever great of heart in life for their fellowmen and enable them to abate the horrors of war and disease until at last all men shall have learned the virtue and wisdom of peace to each other. All of which we ask and humbly beseech of thee in the name of our Lord Jesus Christ. Amen.

THE STATE OF MICHIGAN.

BY THE HONORABLE EDWIN P. DENBY,

MEMBER OF CONGRESS FROM MICHIGAN.

YOU do not regret half as much as I do the absence of Governor Warner, who was to speak upon this subject, and yet my laments are tinged with satisfaction. It is seldom indeed that we have the opportunity to welcome to Detroit so



Hon. Edward P. Denby.

large a gathering of gentlemen from such diverse parts of the world, all occupied in alleviating human suffering, of trying to make warfare humane. It gives me pleasure to be here to take feebly the place of Governor Warner and bid the gentlemen of this Congress welcome to Michigan. We in Michigan do not claim that we have or are the greatest state in the Union. We are more proud to believe that we are only one of the glorious sisterhood of states, equal in opportunity and high standards of citizenship. We have many and unique features. Its splendid climate and its history make it notable among the states of the union.

It is stated that in 1634 the first

white man, John Nicollet, set foot in Michigan at Sault Ste. Marie with a large following. He was courageous and self-sacrificing, and lived among the Indian savages. In 1688 one of these fathers, Pere Marquette made the first settlement on Michigan soil. This was the second mission on Lake Superior. In 1701 Cadillac with fifty soldiers and fifty artisans founded the settlement which has

since grown into Detroit. The lilies of France planted in 1661 waved over the land until 1750, when Wolfe made his ascent over the heights of Abraham, and then the English flag took its place. As a result of the conspiracy planned by Pontiac, the burden of his attack from May to October was delivered upon the stockade where Detroit now stands, but it never went down to defeat. From then until 1796, England owned Detroit, and then the third and last flag was raised. In 1796 after thirteen years England gave up, and since then our flag has been flying. This is no place to burden you with statistics, but perhaps you do not realize what Michigan is. She was the first state in the Union in the production of copper, iron and timber. Since then she has dropped to second place. Michigan is first still in the production of peas, peppermint and chickory. She is second in the production of strawberries, raspberries and blackberries, and she is first we think in humanity. But to show that Michigan has some special claim to welcome this Association, let me recite some of her medical triumphs. In 1882 Alexis St. Martin received a terrible gunshot wound in the stomach. An Army Surgeon made him in three years a well man, but his stomach had never healed up, and, thereafter, for eight years Surgeon Beaumont conducted the most remarkable scientific research that has ever been known. Several times St. Martin would run away, but Surgeon Beaumont would chase him up and bring him back. Nothing has been added to the researches of Beaumont except the discovery of pepsin. Michigan also boasts of the University which is her own and where Dr. Vaughan discovered tyrotoxin. Here in Detroit we have Dr. McGraw the discoverer of the famous ligature. I might recite the triumphs wrought here through the great drug houses, but I shall not weary you. I wish to say to you all that Michigan welcomes you with open arms, and as Joseph Jefferson used to say, 'May you live long and prosper.'

THE CITY OF THE STRAITS.

BY THE HON. GEORGE P. CODD,

MAYOR OF DETROIT.

THE City of the Straits gives you a hearty welcome and thanks you sincerely for having made this city your meeting place at this convention. We are proud of our city; we are glad to have with us such distinguished citizens of other cities, states and countries, in that it gives us the privilege of showing to them what we are proud of here,—Our City. We are glad to have you come and see us, and to have you with us from the selfish reason that you do us good in coming. You help us. The ideas that you have, the ideas that your organization has, founded upon our ideas will help any city or state government. You are founded for the purpose of helping humanity, of helping mankind, and when you allow the citizens of Detroit to hear your deliberations, and know what you know, you are helping us greatly, and for that Detroit thanks you most heartily. While our world is at peace, you are still working along the lines which if it is ever necessary for any nation to engage in strife, will enable you to heal the wounded with the best methods, and to care for the men who go forth for their country's honor. Your work makes the wives, mothers, daughters, sisters and sweethearts feel that when their dear ones go forth to fight, they will be taken care of in the best manner possible. You are studying to take care of the men in the most approved method. During our late war with Spain a man went to the front and braved the hailstorm of bullets going up San Juan hill, and then became the greatest peacemaker the world has ever known. That man as you know is our own President Roosevelt, the commander in chief of the Association of Military Surgeons, and of the Army and the Navy, who has shown that he is a warrior and still a man of peace. Each and every country must prepare in times of peace for war. To you then is due all the praise that can possibly be given by any state or country. We are proud of your being here, and in behalf of the city government, if there is anything in our power to make your stay a pleasant one, let us know.

MICHIGAN IN WAR.

By BREVET LIEUTENANT COLONEL R. W. JACKLIN,
OF DETROIT.

I APPRECIATE the honor you have conferred upon me, but very much regret my inability to do justice to so great a subject as that assigned. I am not learned, nor eloquent, nor am I an orator. I was a plain soldier—for the preservation of this Union. From a private in the rear ranks, to Brevet Lieutenant Colonel, I had the honor to command at intervals, the 8th regiment of battlefield soldiers in the armies of the United States during the Civil War. I should much prefer to listen, to our honored and respected citizen soldier, General R. A. Alger, who was first selected.

As I understand it, the Association of Military Surgeons of the United States, is a progressive association, and their objects and aims are mutual inspiration, and improvement, and the maintaining of military practice, as a specialty, etc. The objects are certainly worthy ones, and we all trust that you may be successful, in maintaining and perpetuating them. I have reason to believe that by asso-



Brevet Lieutenant Colonel R. W. Jacklin.

ciation, and a thorough professional knowledge, great good was accomplished in caring for the sick and wounded in the great war in the Far East, particularly so on the part of the Japanese. We welcome you all to our beautiful city.

Michigan in War—my subject. In greatness—strength; in unity of action—success. Michigan second to no other state in the Union when duty calls to preserve or perpetuate. Michigan has been ever loyal to the Nation.

Now it is a very pleasant and a gracious thing for us, as on this occasion assembled, and representing as we do, the military order of Surgeons of the United States and with members of this order from foreign countries, to recite as among ourselves, the good deeds done by States and Nation in honor of state or nation in preserving and perpetuating by our heroic deeds, as individuals, and our patriotism as a people in fraternity, charity and loyalty to all.

Michigan as a State,—the thirteenth by admission into the Union of states, with an area of 78,915 square miles, including the water area, and a population in 1860 at about the time the great war of the Rebellion broke upon this nation, of 749,113, her quota for that great war was 95,000, of which 90,747 were duly enrolled. 90,048 were accepted and mustered into United States service. The losses sustained were 14,855. I make this statement from the official reports, to illustrate the magnitude of the great work performed during the trying days of 1861 to 1865. But I must go back to Michigan in territorial days and to illustrate more fully the greatness of the state.

Michigan is divided into two peninsulas and its greatness consists of its physical features, geology, mineral resources, soil, and products, lumber, fisheries, climate, its institutions and its greatness in its honor and integrity as a people.

This great state was under French dominion from 1622 to 1763; British dominion from 1763 to 1796; North West Territory from 1796 to 1800; Indiana Territory from 1800 to 1805; Michigan Territory from 1805 to 1835, when it became a state and was admitted into the Union of states January 26, 1837.

Michigan in War. — Participating in the War of 1812 and 1813 with Great Britain, Michigan bore no inconsiderable part, as she bordered largely on the Canadian frontier and could scarcely do otherwise, Detroit being the principal inhabited place in the Territory. The advance of the British troops on

these posts and their surrender are matters of familiar history and it is not intended to give any further detailed account.

Again in the Black Hawk War, in the early spring of 1832, a war with the Sac and Fox Indians then occupying country west of the Mississippi River, and which was inaugurated by invasion by Black Hawk, the chief of these Indians, Michigan bore no inconsiderable part. The Indians were in due time surrounded and fell easy victims, and the battles soon terminated in the total destruction of a very large portion of Black Hawk's followers.

And again in the Toledo War, a bloodless war in the beginning of 1835 in which the State of Ohio undertook to enforce jurisdiction over certain territory south of the Maumee Bay. The matter, however in due time was compromised, and properly adjusted so far as the relation of states was concerned.

Again in the Mexican War, which commenced in 1845, and continued in 1846 and 1847, an army in command of Lieutenant General Scott entered Mexico at Vera Cruz and advanced upon the City of Mexico. A regiment from this state known as the 1st Regiment Michigan Volunteers was mustered into the service and commanded by Colonel Thomas B. W. Stockton, with Alpheus S. Williams as Lieutenant Colonel. The regiment remained in the field rendering faithful and efficient service until the close of the war and it is said of this regiment that of all the heroic band composing the American army in Mexico, none served their country more faithfully, bravely and successfully than those from our own state.

Thus, as we may observe, history would accredit to Michigan the faithful performance of duty in the wars up to the Civil War, of which I am prompted to speak more fully by reason of having participated in the four long years of solid war.

"To have been to the wars, is a life-long honor, increasing with advancing years, while to have died in defense of your country will be the boast and glory of your children's children." The reputation of the regiments of infantry, cavalry, mechanics and engineers, companies and regiment of sharpshooters, batteries of artillery, comprising the quotas of Michigan as fighting

men, their splendid physique and courage, their efficient and marvelous discipline, their appalling losses in battle, their numerous details for desperate and critical movements and their historic connection with the events opening and closing the great Rebellion are cogent reasons why we should perpetuate the history of Michigan in the Civil war as well as Michigan in the Spanish-American War, no less efficient and in readiness to perform heroic deeds, had our troops had the same opportunities.

"Among the volunteers of twenty-eight states, none can claim pre-eminence over those of our own beloved state of Michigan, for their heroic valor and unswerving devotion upon bloody battlefields, to protect the flag and to preserve the Union." But I am prefacing perhaps too much. Let us see what Michigan did. As I have said, there were enrolled and mustered into United States service, 90,048. The number of killed and wounded and missing was 14,855. Michigan engaged the enemy on 800 occasions during the Civil War. Michigan was first to cross the Long Bridge into Virginia, and capture the city of Alexandria. Michigan was among the first to fire the first guns upon Yorktown, in McClellan's campaign on the peninsula. Michigan was among the number of regiments to defend Little Round Top at Gettysburg, the turning point of the great Rebellion. The losses in that bloody encounter on the defensive was no less than 491 officers and men in the old 3d Brigade, First Division 5th Army Corps, in thirty minutes by the watch.

Michigan again formed a part of the first Division of the 5th Army Corps that received the surrender of Lee's army at Appomattox Court House, April 9th, 1865. Michigan again was most prominent in the Western armies and at the great battle of Chickamauga and performed heroic services on that battlefield, standing by General George H. Thomas in defense until the last.

Thus far I have given more particular credit to the infantry from Michigan. I must not omit the cavalry or artillery or mechanics and engineers and the sharpshooters.

The Michigan Brigade of Cavalry at Gettysburg under the command of the gallant and dashing General George A. Custer, defended the right of our lines and whipped General J. E. B.

Stuart to a finish, thereby preventing him from destroying the ammunition trains, in the rear of our army, which also inspired our men under General Hancock to defeat General Pickett in his great charge on the center of our lines.

The Michigan batteries in the western army were among the best upon the bloody fields, and performed their duties heroically. The Michigan Mechanics and Engineers were among the first in the armies and performed great duties in the re-constructing and building of railroad bridges, pontoon bridges, and such work as they were called upon from time to time to perform. The Michigan sharpshooters were second to no others in skill, in marksmanship and in the faithful performance of all duties assigned to them. "Michigan is on guard tonight," was the watchword of safety and security to all.

Thus far I have omitted the Navy, regular and volunteer.

"Our Country's flag is proudly flung,
With all its stars on every breeze.
And Freedom's voice with trumpet tongue,
Is sounding o'er land and seas."

During the wars, the Navy fully maintained its record of former years, performing its full share in preserving the Union, gallantly defending and honoring the flag and was conspicuous for brilliancy and daring. Men from Michigan were most prominent in the early wars, in the Civil War and more particularly in the Spanish-American War under Admiral Dewey. All honor to them for faithful services performed.

The names of some of our most distinguished Generals and field officers whom we may claim as having performed services for Michigan in the wars are: Generals Cass, Williams, Sheridan, Granger, Wilcox, Custer, Poe, Robinson, Richardson, Broadhead, Minty, Woodbury, Pulford, Lum, Stockton, Morrow, McCreery, Mizner, Shafter, Alger, Duffield; and of the Navy: Babcock, Clitz, Davenport, Gridley, Wisner,—in the Regular service, and in the Volunteer service: Abbott, Whittemore and many others.

I will now call your attention for a few moments to a few of the incidents from personal recollection and observation during the great Civil War in which, as I have said, I was a participant.

I first enrolled in the service April 18, 1861 as a member of the Detroit Light Guard, Company A, 1st Regiment Michigan Volunteer Infantry, the Company that furnished no less than eighty-three commissioned officers from its ranks during the four years. I next enrolled as a sharpshooter in a company attached to the 16th Michigan Veteran Volunteer Infantry and during the service with company and regiment did assist directly and indirectly by leading in battle in furnishing some work for the surgeons, as there were lost in that old regiment no less than 912 officers and men, in killed, wounded and by disease. But I must stop, this is leading to too much personal service, and I must recite to you incidents. The first is the case of Corporal James Tanner, now Commander-in-Chief of the G. A. R., who was wounded on the battlefield of Second Bull Run, August 30, 1862, a cannon ball breaking both legs. He was rolled up in a blanket and carried back by comrades to a point of wood where Surgeon Robert A. Everett, a Michigan surgeon, performed a double amputation, and in a very hurried manner, it being necessary by reason of the enemy driving our forces from the field, so as to be in possession of this point in a very short time. Twenty-eight years after, Corporal Tanner was to deliver a lecture at Hillsdale, Michigan when the question of "where and how did you lose your legs?" was asked. Corporal Tanner explained, and further said that he had been trying all these years to find the surgeon who performed the amputation, when Dr. Everett, who was present, said to him: "I performed the operation. Let me see your stumps." Corporal Tanner seated in a chair, extended both his limbs. Dr. Everett kneeling in front of him, unstrapped the artificial legs, and made a thorough examination. "Yes, I performed the operation; remember it distinctly; very much in haste; left you under the influence of chloroform; rolled up my surgical instruments and got out of the way of the enemy, and didn't take your name, company or regiment; reported you as unknown, and you will find record in the Medical Department." Corporal Tanner lives today a brilliant orator and, as I have said, Commander-in-Chief of the G. A. R., with the honor accredited to the surgeon who spared him.

The volunteer surgeons from Michigan were very much in evidence in the Civil War. In the first call for troops, there were no less than thirty-three surgeons with their assistants who left their business and comforts of home to volunteer without compensation, to aid the suffering which was occasioned by the war, and in one of their reports it is recited as follows: "The Potomac Army under command of Lieutenant General Grant crossed the Rapidan May 5th, 1864, and from that day onward to about the 17th of June, there occurred a nearly continuous succession of battles, so frequent that it was a common remark of the soldiers that it seemed to them like one continuous battle. Certain it was that the entire region from the Rapidan to Cold Harbor was a continuous battleground. The 300,000 men in daily and nightly conflict for forty-two successive days and nights produced of necessity a host of wounded, who demanded from not only the Government, but the people every possible assistance." The losses sustained by the Union Army alone were approximately 60,000 men.

In closing, I cannot refrain from again mentioning Gettysburg, the greatest battle of the war, and to quote the words of our martyred President, Abraham Lincoln: "The brave men living and dead who struggled here, have consecrated it far above our poor power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here."

And now, my companions and comrades in the Association of Military Surgeons of the United States, I say to you,—Go on with the great work, maintain the military position of the medical officer and the surgeon, and be prompt and constant in readiness for duty in the Medical Department, and thus provide a factor in future hostilities that will vastly reduce the suffering and the menace of mortality of the commands in which members of your Association may be engaged, ever remembering that:

"Out beyond the picket lines,
Into the shadows heavy and dim,
The boys that stood in the battle's front
Are steadily marching, one by one,
Steadily marching with soldierly tread,
To join the ranks of the mighty dead,"

and we give you our blessing before our final departure.

FRANCE AND THE ASSOCIATION OF MILITARY
SURGEONS.

By COLONEL H. MARESCHAL,
PRINCIPAL PHYSICIAN OF THE FIRST CLASS IN THE FRENCH
ARMY; CHIEF MEDICAL OFFICER OF THE MILITARY DE-
PARTMENT OF PARIS, FRANCE.

TRANSLATED BY COLONEL VALERY HAVARD,
ASSISTANT SURGEON GENERAL IN THE UNITED STATES ARMY.

THE cordial welcome I have received these past two years in the midst of your genial Association, especially this year in this hospitable city of Detroit, imposes upon me the imperative and pleasant duty to extend to you my sincerest thanks.

Your distinguished President, your indefatigable Secretary who is the soul of the Association, and your zealous committees have spared neither time nor efforts to combine the agreeable with the useful, and I know but too well the difficulties of such an undertaking not to felicitate them upon their success. They have thought of everything, not forgetting the feminine element which graces our meetings, bedecking them with fresh colors and cheering them with its inspiring smile. Therefore I can assure you that each one of us will carry away the pleasantest and most lasting remembrance of this charming reunion.

I beg the President of the last meeting, Medical Director John C. Wise, to permit me to embrace this opportunity to thank him for the handsome eulogy of Larry, delivered last year in St. Louis. The words in which he has so eloquently praised the work of this "ideal military surgeon" induce me to recall that if France has had Larrey, Percy, Baudens, Villemin, and Laveran, the Medical Department of the United States Army has had in its ranks McHenry, once Secretary of War, Rush, Hammond, Barnes, Otis, Reed, and many others, without counting the living. Therefore, in evoking their images, together with those of Washington, Rochambeau and Lafayette, I may be allowed again to give expression to the felicitous thought that the chain which unites the republic of the United States to the republic of France will soon consist only of golden links.

I also desire to present my modest congratulations to Colonel Nicholas Senn for his warm and generous advocacy of an Inter-

national Congress of Military Surgeons, in which I am a convinced believer, although not overlooking the difficulties of such a creation. To commend his speech of 1904 would be to weaken its effect. Enough to say that, in obtaining from our respective governments the authorization to bring about such an organization, our only object will be a union of efforts to mitigate the horrors of war, until the definite triumph of peace and of fraternity among all peoples.

Gentlemen, permit me, in closing, very respectfully to salute the eminent President of the United States whose name has just been joyfully acclaimed throughout the entire world.

THE FOREIGN DELEGATES.

By S. SUZUKI,

SURGEON GENERAL IN THE IMPERIAL JAPANESE NAVY;
DEAN OF THE FOREIGN DELEGATES.

I HAVE great honor to speak on behalf of the foreign delegation to this meeting.

First I must thank you for inviting us to this honorable meeting, and we feel friendship and courtesy in coming here to meet you. I must also thank Detroit. I had a drive this afternoon and saw a most beautiful city. Two months ago I was on the *Mikasa* with Togo. I came from Tokyo here. I find great pleasure among such distinguished ladies and gentlemen. The United States is comparatively a young country as yet, but you already have the fourteenth annual meeting of this Association. In the different countries they have such meetings also, and we in Japan have an



Surgeon General S. Suzuki.

Army and Navy Surgical Association, but I have never heard

of any other country's association sending invitations for foreign delegates to be present. I hope the Army and Navy surgeons will join to make it an International Association of Military Surgeons. I heard about the movement this morning from Colonel Senn, and I heartily endorse it and hope in the near future it will be organized.

THE PRESIDENT'S LETTER TO THE OFFICERS AND MEMBERS OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

IT is with profound regret that I am unable to meet with you and act as your presiding officer at this the fourteenth meeting of our Association. It is a personal disappointment, the fulness of which I can scarcely express, that I am deprived of the pleasure of again enjoying the delightful association which makes of our annual meeting an event pleasant in anticipation and still more pleasant in realization.



Surgeon General Walter Wyman, President

I had hoped personally to express to you the appreciation of the honor conferred upon me by your ballot at the St. Louis meeting, an honor which I deeply appreciated at the time and which I have held in grateful thought and enjoyment during the past year, and in acknowledgment of which I had in anticipation expression of views in the annual address which might be deemed of interest and of possible value.

To the medical man, busily engaged in the practice of his profession, whether it be in private practice, in military or naval surgery, in marine hospitals or sanitation, or other official pro-

fessional labor, the meeting with his confreres in annual convention furnishes the opportunity for a mental recreation, social enjoyment, and exchanges of fraternal sentiment, to a degree and in a manner that cannot elsewhere be enjoyed.

Of all the various professional meetings which I am in the habit of attending there is not one to which I look forward with greater personal pleasure and delight than the meetings of this Association. Where else do we meet the medical officers of the Army, the Navy, the Public Health and Marine-Hospital Service, and the National Guard, and last but by no means least,—because they are uppermost in our minds as our invited guests,—the distinguished representatives from abroad, who have been detailed by their respective governments to honor us with their presence? I am sure that Colonel Albert Henry Briggs, of New York, who takes my place, and all of you, will extend to these distinguished visitors in a cordial manner the hand of welcome and friendship.

It is proper here to state the unfortunate circumstance which prevents my being with you. The epidemic of yellow fever in the south, besides throwing a great weight of labor on the medical corps of the Service which I represent, demanding so large a proportion of the corps on the field of action, also requires administrative labors of a strenuous character at the Bureau.

I have thought it might be possible to attend this meeting if even for a day, but in this I am disappointed. And even if circumstances would permit my leaving the Bureau at this time, it would be my greater duty to visit the scenes of action in the south.

I am forced, therefore, simply to send you this greeting, to express my confidence that the papers and discussions will be, as heretofore, of great permanent value, and to assure you that both in your meetings where serious problems will be discussed and in the social occasions, when, through the hospitality of the citizens of Detroit, you will find recreation and most delightful entertainment, I shall be with you in spirit.

Again thanking you for the honor which you have conferred upon me, and congratulating you upon the steadily increasing importance and value of our organization, I remain

Very respectfully yours,

WALTER WYMAN,

Surgeon General U.S.P.H.S. & M.H.S.,

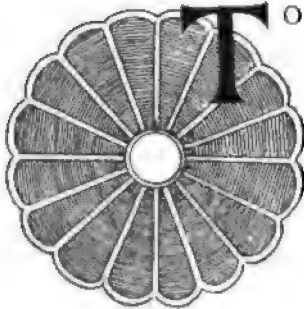
President.

Original Memoirs.

NOTES ON EXPERIENCES DURING THE RUSSO-JAPANESE NAVAL WAR, 1904-1905.

By SHIGEMICHI SUZUKI,
TOKIO, JAPAN.

SURGEON GENERAL IN THE IMPERIAL JAPANESE NAVY.



TO be allowed to address this honorable meeting on the subject of my recent experiences during the present war I feel to be a great honor. The limited space of time at my disposal does not allow me to go into details even on points of importance: and I think therefore that my best plan will be to touch briefly on the several points which have been most prominent in my experience, so as to give you at least an outline of the whole subject.

I divide my experiences as Surgeon-in-Chief of the Combined Fleets, serving on board the Flagship *Mikasa* under Admiral Togo, into two parts.

- (1). The Treatment and Management of the Wounded.
- (2). The Sanitary Arrangements of the Combined Fleets.

And first as to the

TREATMENT AND MANAGEMENT OF THE WOUNDED.

In February of last year, before our fleets left Sasebo, I issued orders to the surgeons of the fleets that aseptic treatment should be adopted in the treatment of the wounded in all the battles of the war then imminent, and that all necessary preparations for the adoption of this treatment should be made. I also ordered the observation of conservative methods of surgery. Amputations, etc., on board the warships should be avoided as far as possible and every preparation made for transferring the wounded as soon as possible after the conclusion of an engagement to the

hospital ships, for conveyance to the home hospitals, where complete asepsis could be enforced and better results obtained than on the warships, where our arrangements were of necessity more or less incomplete.

All the gentlemen here present are aware that even in peace time complete asepsis is a matter difficult of attainment on board a warship. During an engagement it is ten times more difficult. The firing of guns, the hastening to and fro of men engaged in combat, and a thousand other things fill the air around the tempor-



Case of Perforated Wound of the Left Thigh; Blind Wound of the Right Axilla; and Abrasion of the Right Thigh in a Russian Stoker, about to be dressed.

ary surgery with dust and particles of matter, a number of wounded cases are brought in, all demanding immediate treatment, and the constant need for despatch in doing our work—all combining to make complete asepsis a thing almost impossible to enforce. We are, however, convinced believers in the immense value of the aseptic treatment of recent wounds, so that we have constantly endeavored to combat all the difficulties that stood in our way, and as I hope to show in this paper, our perseverance has been abundantly rewarded.

The total number of casualties from February, 1904, to August, 1905, was 3,682; of these 1,891 were killed, and 1,791 wounded, of which 117 died afterward.

Of the 1,891 deaths, 1,445 were due to shipwrecks caused by submarine mines, and only 563 to wounds received in actual fighting.

Of the 1,791 wounded, 647 received wounds requiring hospital treatment, and of these only 32 died. The rest were partly light cases, and partly cases requiring greater care.

Our aseptic methods have been the same as those in general use in every part of the world. All dressing materials were sterilized by steam, and kept in close tin cases; surgical instruments were purified by boiling in soda water; the surgeon's hands, and the skin around the wounded parts, were washed in sterilized water, with soap applied by a brush. A solution of sublimate was next used, and this washing was followed by another washing with sterilized water. When the condition did not allow the use of soap and water un-hydrated alcohol was used to sterilize the skin around the wounds.

Many opinions have been broached by the surgeons of various navies as to the proper treatment of the wounded during action. My own experience during the actions of the present war leads me to the conclusion that it must be divided into two stages.

In the first stage, i. e., whilst the action is still going on, we can hope to accomplish nothing except the most urgent aid. We can merely ligature or compress arterial bleeding, or apply ready-made splints in cases of fracture, or cleanse the wounds of the soft parts of the body, and apply sterilized gauze and bandages; but that is all. It is not till we come to the second stage, when the action is over and the firing has ceased, that we can really begin to apply our healing art. We can then get the ship's surgery ready for the work, and give orders for the wounded to be brought thither from the places where they have been temporarily bestowed. We take the severer cases first, examine the wounds minutely and make notes on each case, try to extract any fragments of shell or pieces of cloth which seem as if they could be got without much difficulty, and where possible suture

the skin. It will perhaps be thought that in these latter cases primary union is hopeless and that not much good can be obtained by suture. Our experience has, however, showed us that to cover a wounded surface with skin is a great protection to it. In cases of compound fracture, free segments of bone in the wound cavity were extracted; but fissured fragments or such as were not completely detached were left *in situ*, and it was found that these would unite afterward at the home hospitals. The dressings in the second stage were the same as those used in the first.

The treatment given during the second stage was merely of the nature of urgent aid. I believe that it is better to give temporary relief to the wounded rather than to meddle with complicated operations, and to transfer the patients as



Case of Lacerated Wound of the Left Foot Received at the Battle of the Yellow Sea by a Seaman of the *Nisshin*.

soon as possible to the hospital-ship. The action which has ceased for the time may at any moment be resumed. It is not right therefore, nor desirable, to spend precious time in attending to the wants of a few, and thus to leave unattended the

larger portion of the wounded. I believe that in crises like these it is a surgeon's duty to give relief to all the wounded and not to a few only.

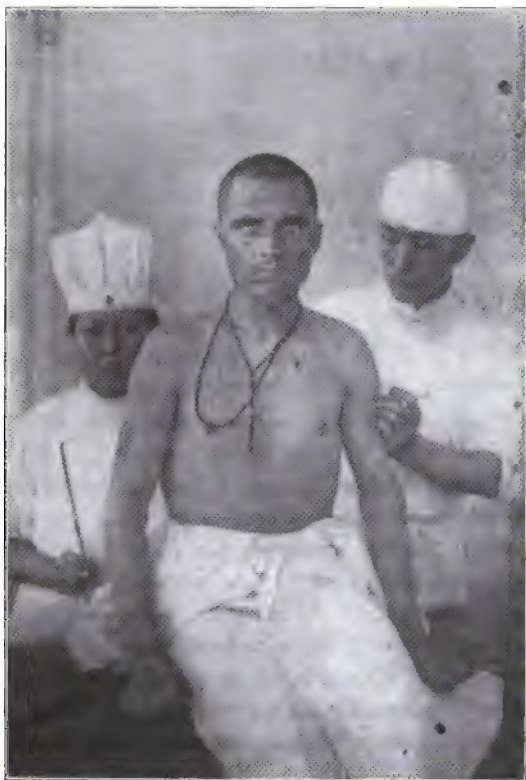
THE LOCATION OF THE TEMPORARY SURGERY.

Many ideas have been broached in the various navies as to the proper place for a ship's surgery. Ideally speaking the right thing would be that at the time of designing a ship a proper space below the water-line should be allotted for the purpose with proper arrangements for the conveyance of wounded men; but this ideal arrangement often interferes with combatant dispositions, not only on smaller vessels, but even on battleships, and hence it has come to pass that not one of our men-of-war possesses a surgery ideally placed, though we found one or two on some of the captured Russian ships. My recent experience, however, confirms me in the thought that, in spite of certain drawbacks, the proper place for the surgery is below the water-line. Care must be taken to provide good light and good ventilation, and an elevator for the conveyance of the wounded is most desirable. It is not necessary that the sick-berths should be near the surgery: for the sick may be removed during the action to some place of greater safety; the berths may be placed in any suitable situation on a proper deck above the water-line.

The selection of a surgery for use during action is a point requiring the careful attention of the chief surgeon on each ship. The surgery ordinarily used is as a rule to be found on the main deck, but the position is too much exposed to be a safe one during an action. In battleships and armoured cruisers a suitable place may often be found on the lower deck, but this is still above the water-line: when we pursue our researches lower down in the ship, the difficulty is not so much to find a proper place as to provide convenient means for taking down the wounded. The ladders in the lower parts of a ship are generally too narrow and too steep to admit of a wounded man being taken below, except by an elevator, where there is one. In the engagements during the present war, our surgeries have as a rule been placed on the lower deck in battleships and armoured cruisers, whilst in the

smaller cruisers either the wardroom, the cock-pit, or one of the larger cabins has been used for the purpose.

As to the number of ship's surgeries, every vessel from battleship to destroyer, should have at least two. The disastrous experience on board the *Hiyei* in the war with China in 1894-5 pointed us to this conclusion, and our experiences during the present war have confirmed us in this opinion. It will be urged in opposition to this that, in smaller ships which carry only one surgeon, it is impossible for him to use two places at once; but the second surgery is intended for use in case the first should be destroyed (as actually happened on board the *Hiyei*), and where such is the case the work of tending the wounded can be carried on without loss of time or expenditure of unnecessary labor.



Case of Blind Wound of the Left Side of the Chest in a Russian Stoker.

The use of the ordinary surgery at such times is fraught with danger, as the main deck is generally much exposed to the accidents of war. On the *Mikasa* the sick berths were damaged during the battle of the Yellow Sea last year whilst the surgery was smashed by a shot during the battle of the Japan Sea last

May. Had our surgical work during those battles been carried on in the ordinary surgery, both surgeons and patients would have been exposed to much danger.

In unprotected cruisers the sides of the surgery should be covered with canvas screens or mantlets. While the gunboat *Chokai* was engaged in assisting the operations of our land forces to the west of Port Arthur, a shell burst quite near to the cabin which was being used as a surgery, but the canvas screens prevented the entrance of any shell fragments into the surgery itself.

The following are the implements and instruments that should be provided in the temporary surgery:

Steam sterilizers, buckets for the reception of soiled materials, and ice boxes. An operating table may be improvised by the use of chests which are always to be found on board a ship. Wounded persons suffer much from thirst, and for this purpose jugs with long narrow spouts should be furnished. Tumblers or tubes for sucking are too inconvenient for use during action.

RECEIVING PLACE FOR THE WOUNDED AFTER FIRST AID.

It is important, but extremely difficult, to find a safe place for the bestowal of the wounded after their wounds have been dressed. On battleships and armoured cruisers we used the passages on either side of the lower deck, placing the sick on each side of the passage, with a narrow space left open down the middle; and in this way we found that we could provide for sixty or seventy men. When the wounded were in excess of this number, other places had to be found, and here we were confronted with a difficulty to which I have already alluded. The only places really suitable were far down below the water-line, accessible only by narrow and steep ladders which made the carrying of wounded men almost impossible, and devoid of light and proper ventilation. Fortunately in none of our engagements did the number of wounded men requiring treatment here exceed the limits of the space provided on the lower deck. The difficulty was therefore not an acute one, but we have learned a lesson which may be of use to us in the future.

In unprotected cruisers every part of the ship is practically alike exposed to danger, so that the placing of the wounded is

not so difficult a problem. They were, as a rule, placed on the lower deck.

As soon as the battle is over, the wounded should at once be removed to the sick berths, or chest-flat, etc., and preparations be made for transferring them to the hospital ship.

During an action, nearly every hatch is closed, and the temperature on the lower deck rises very considerably not only in summer, but even in winter. This causes much distress to the patients, for whose use electric and other fans should be provided beforehand. On ships carrying ice-making machinery care should be taken to provide the lower deck with an abundance of that article.

Dead bodies should be removed as speedily and as privately as possible, and placed in the temporary dead-house. For the bodies of officers we used the engineer's bathroom; the others were placed in the bathroom for seamen.

CARRYING THE WOUNDED.

It is the practice of the Japanese Navy during time of peace to divide the ship's complement into two portions for instruction in first aid and ambulance work.

The first division comprises clerks, riggers, servants and fire brigade men (also the bandsmen on board the flagship), and receives instructions from the ship's surgeons, in bandaging wounds, prevention and stoppage of bleeding, and carrying of wounded men, for several hours per week. These men, therefore, are well qualified assistants in the work of tending the wounded with first aid. The second division consists of the rest of the crew, and receives instruction as time and opportunity allow.

We found, however, that in the bustle and excitement of an action it was impossible to put into practice all the rules and devices which our men had learned. In about one-third of the cases, first aid dressing was applied to the wounds, and the men carried down on stretchers to the surgery; in the remaining cases the men were just picked up as they fell and carried straight to the surgery in the arms of their comrades. In cases of slight injuries, however, the dressing was at once applied and the men

went back to their stations without coming to the surgery at all.

It might perhaps be inferred from what I have just said that our ambulance work was not very satisfactory. But this was not the case. It is not to be expected that work of this nature should be carried out always "according to the book" in the thick of a close fight, where unforeseen accidents are continually happening to upset one's preconceived calculations. Let me instance a case. On the Flagship *Mikasa* we had ambulance parties with first-aid dressings stationed in several places on the upper and main decks, the intention being that whenever a man fell he should at once have his wounds dressed and be taken on a stretcher to the surgery. The *Mikasa*, however, as being Admiral Togo's Flagship, was constantly in the very thick of the fight. In the battle of the Yellow Sea she was a target for many Russian guns, and seven ambulance men were killed and seven more wounded whilst engaged in the work of giving first aid dressing on the upper deck. After that experience it was considered unwise to risk any long exposure on the upper deck, and from that time the wounded were carried down to the surgery at once, without waiting to have their wounds dressed on the spot.

It was but natural that we should have some anxiety as to the after course of wounds brought exposed to the surgery, but I am glad to say that all such cases did well after admission to hospital. The wounded were often carried by two men, one at the head and one at the feet; but oftener still a single man would take his wounded comrade on his back. We Japanese are accustomed to this mode of conveyance; our babies are always carried about on the backs of their mothers, nurses and elder brothers and sisters.

Our experience has been that no one kind of stretcher is adapted for all the requirements of naval service, but this is a point on which I should like to invite your discussion later on. We had stretchers distributed in various places on the upper and main decks of our war ships during action; but in many cases the stretchers were injured by fragments of shell, or buried beneath broken spars, etc., so as not to be readily accessible, or else the

passages got so blocked with debris as to be impassable. We were thus frequently obliged to have recourse to carriage by hand.

DRESSING MATERIALS AND INSTRUMENTS.

A large consumption of dressing material is unavoidable during action. We foresaw this and provided each ship with a stock of material considerably larger than our usual annual ratio. Thanks to this precaution, none of our ships suffered from a deficiency of dressings, not even after the battle of the Japan Sea, when we had to treat many Russian wounded in addition to our own. For instance, 120 Russian prisoners were treated on board the *Kasuga* after the battle, and even with this large additional demand there was no shortage of supply.

Packets of first-aid dressing for the use of the Navy, necessarily differ very much from those served to the army. Gunshot or splinter wounds are usually much larger than those made by a small bore rifle bullet. To cover a gunshot wound completely we require two or three ordinary-sized packets of dressing, and it generally happens that when a man is struck by a bursting shell he has more than one wound. My experience after the fighting on the 9th of February last year showed me that much valuable time was lost in the mere opening of the small packages hitherto in use, and I consequently wrote at once to the headquarters to have the size altered. The packages hitherto served out to our Navy contained each three pieces of sublimate gauze folded to the size of three inches in length, and from one and a half to two and a half inches in width. This was inclosed within a folded piece of triangular bandage and the whole tightly packed in a small linen bag. There was no time in emergencies for the ambulance men to open and properly unfold these little packages, so as to cover the whole surface of the wound, and the consequence was that very often only a part of the wound was covered.

The new package contains four pieces of sublimate gauze, twenty-four inches long, and folded in a package four inches square. This package is wrapped in Japanese paper and is placed in a loose bag of "shibukami," a stout Japanese paper fabric steeped in the juice of the bitter persimmon, which also contains a regularly folded triangular bandage, and is tightly closed with

sterilized paste. Our reports tell us that the new package is much easier to open, and that the larger size of the pieces of gauze materially facilitates the work of dressing. Packages of first-aid dressing should be carried by all ambulance men besides being distributed in suitable places in the batteries, on the bridges and elsewhere.

Each surgery should have a pair of large tailor's shears, these being very useful for cutting off the clothes of wounded men. Also a large number of dressed splints of different kinds and ready for use should be provided.

Fenestrated zinc plate splints are sometimes very useful. With them should be provided a pair of stout nippers for cutting them to the shape required. The aid of the blacksmith cannot be invoked for this purpose during the heat of an engagement.

Cotton rollers six or seven inches wide, are sometimes useful, and ought to be provided in every surgery. Also, for every surgeon and attendant there should be provided two or three changes of operating clothes, as the clothes worn during the action cannot be worn again for the operations during the second stage of treatment. India-rubber tubes four or five feet long, carried by an ambulance party will sometimes save life by stopping bleeding from the limbs. We have had few instances of this during the present war. A transfusion apparatus of salt solution will sometimes save from imminent death. We had one case of this on board the *Izumo*.

Note should also be taken of the identification label. Every member of our force carries on his body a small wooden label, marked with his name and rank. This is of the greatest value to the surgeon in the identification of the dead. Bluejackets not unfrequently borrow clothes from their comrades, so that the marking of the clothes is no infallible guide, and it sometimes happens that the faces of the dead have been so disfigured as to be unrecognizable.

PROTECTION OF PERSONS.

It stands to reason that in preparing a ship for action everything should be removed except what is absolutely indispensable or useful for protection. Hammocks are very useful for protec-

tive purposes, but all metallic objects should be taken away whenever practicable. For instance, during the battle of the Yellow Sea, a semaphore in the fore part of the *Mikasa* was struck by a shell and twenty-three persons were either killed or wounded by splinters and fragments. If the semaphore had been removed—and it was not essentially necessary—this deplorable loss would not have been sustained. Bridges are always favorite targets for the enemy's gunners; they should be protected as much as possible by layers of hammocks hung over the sides. The compass-box on the topmost bridge is of vital importance and cannot be removed; it also should be incased in hammocks for protection, and the sides of light guns should likewise be covered with hammocks or mantlets. We have had many illustrations of the protective value of hammock screens; for we have frequently found embedded in them fragments of shell and splinters which would have wrought much havoc if it had not been for the screens. It might be thought that hammocks would be liable to be set on fire easily; but we have not had a single instance of this in the present war.

It should be noted that gun-crews, etc., on the non-firing side of the ship ought to be placed for rest on the *firing* side; This will perhaps seem strange, but a moment's consideration will show that the action of the fragments of a bursting shell is radiative, and that the area of destruction is far larger at a little distance from the place of explosion.

We found that hammocks could be used not only as protective screens but also as life-preservers. More than one occasion, when our ships sank after contact with Russian mines, the lives of our men were saved by clinging to their hammocks. A hammock makes an excellent life-buoy—it is not hard to touch, like wooden gear, and is easily handled.

When boats are sent out for rescue work in cold weather it is advisable to take a number of blankets for the use of the rescued persons. If this precaution is not taken there is the danger that some of the men may die from cold before reaching the ship. When there are many men to be picked up it sometimes takes a long time, especially in the dark, before the boat can get back to the ship.

In order to prevent burns or scalds from exploding powder or the steam from bursting pipes, every part of the body should be kept covered. We had many such accidents, but we found that in every case the men who observed this simple rule escaped with nothing more than injuries to face and hands. I gave orders that before



Case of Burns of the Face and Hands Received during the Blockade of Port Arthur by a Seaman of the *Hatsuse*.

the commencement of an action everyone on board should put on clean underclothing. I attribute much of the rapid progress to recovery made by our wounded to this precaution.

When steam is ejected from a bursting pipe, the men standing by should lie flat down on the platform or deck. Men who have tried to escape by climbing ladders or ropes have invariably been severely scalded.

It was once supposed that the conning-tower was the safest place on board a ship, but we can no longer believe that it is so. The observation-slits, though low, have to be made very wide, in order to secure a sufficient range of vision, and there have been several instances of shell-fragments finding their way into

the towers through these slits, and inflicting severe injury on the inmates. One of the bridges, or even the compass-bridge, would seem to be a safer place for observation. Admiral Togo constantly used the compass-bridge of the *Mikasa* during action, both for observation and for directing the operations, and never received even the slightest wound.

We know that there are many instances in which a life has been saved by some object which the wounded man carried about his person, and which stopped the further progress of the bullet or shell fragment, and we have had several such instances in the present war. But we have also had instances of the opposite, where objects carried on the person have been driven



Results in the Case of Burns of the Face and Hands in a Seaman of the Hatsue.

into the body by the splinter and have thus aggravated the injury considerably. We had one instance of a captive Russian officer who carried in his breeches pocket a number of gold coins which had all afterwards to be extracted from his buttock.

We have received from our surgeons many reports as to rupture of tympanic membranes and concussion of the labyrinth during firing, and I am sorry to say that I do not yet know what is the best way to prevent these injuries, though I gave the matter my most careful attention. A remedy or preventive appliance which is to be used by several thousand men must not be of a complicated nature, and I could not think of anything more effective than plugging the meatus with cotton wool. During the period of preparation the surgeons and officers instructed the men of each division as to how to plug their ears, and sterilized cotton wool was distributed for the purpose not only to the gunners but to the whole crews, and yet both after the battle of the Yellow Sea and after that of the Japan Sea we had several cases of deafness brought to our surgeons. These cases may sometimes have been due to careless plugging of the ears, but there were some cases where the ears had been very carefully plugged, and yet deafness ensued. This will require further investigation.

The eyesight of gunners has a great influence on the results of a battle, in which accurate shooting is of such paramount importance. We have always carefully examined the eyes of our gunners before action. If we have found any eye-trouble we have treated it at once; if we have found that it was not easily curable we have had the man transferred to some other station, and his place has been taken by some man with unimpaired eyesight. We found that the gases and dust, which always accompany the firing of big guns, irritate the eyes of our gunners and impair their vision. Every battery has therefore been freely supplied with a one-per-cent solution of boracic acid for the use of the men.

CHARACTER OF THE GUNSHOT WOUNDS.

Wounds inflicted by shell fragments or splinters due to shell explosions present the characteristics of laceration, whether in the soft tissues or in bony substances. The inlets of the fragments are generally smaller in size than the exits; sometimes, however, the exact opposite is the case, though it is hard for us to explain the causes of these and other phenomena. We have often found in the cavities of blind wounds with comparatively

small inlets fragments of shell several times larger than the inlets themselves. In other cases we found wounds with only one orifice, in which we could find no fragments of shells or splinters lodging, though we searched for them carefully with Roentgen rays. And sometimes (as in post-mortem examination) we found fragments the presence of which in the body we could not account for at all.

In the mutilated wounds of the limbs the blood vessels had often been cut right across, and yet there were but few cases of



Case of Compound Fracture of the Right Leg Received at the Third Blockade of Port Arthur by a Petty Officer of the Fugl.

profuse hemorrhage owing to the curling up and closing of the divided ends of the vessels.

In perforated and blind wounds fragments often pass quite close to the blood vessels without injuring them in any way. Arterial bleeding is therefore of comparatively rare occurrence in gunshot wounds, even though the wounds themselves may be large and in several parts of the body. When the shell fragments strike bones, the bones are generally fractured to pieces, but it

sometimes happens that only the superficial layer is sliced off, or the bone merely fissured. Shell-fragments may be considered as aseptic, hence a wound caused by a small shell-fragment generally heals by primary union. Of this we had several instances in the present war. We found, however, that if a piece of cloth



Case of Perforated Wound of the Left Arm; Penetrating Wound of the Left Thigh; and Fracture of the Ninth Rib, with Haemothorax in a Russian Seaman.

entered the wound along with the fragment of shell, there was always danger of the cloth being left behind when the shell-fragment was extracted, in which case suppuration was sure to follow. Whenever, therefore, the healing process is retarded by suppuration, a careful search should at once be made for the presence of foreign bodies such as pieces of cloth in the wound cavity. Once these are removed the wounds heal very quickly. The number of wounds inflicted on one person differs greatly; often they

are more than one, sometimes they amount to several dozen or even over one hundred. The size of the wounds also differs greatly from mutilation of the whole body to wounds as small as a millet seed. It is obvious, therefore, that in the naval battles the number of the wounds greatly exceeds that of the wounded persons.

EXPERIENCES IN THE RUSSO-JAPANESE NAVAL WAR. 437

There is no definite classification of gunshot wounds but we find the following list shows the character of the wounds fairly well.

CLASSIFIED TABLE OF NUMBER OF WOUNDS (FROM THE BEGINNING OF THE WAR TO THE BATTLE OF THE JAPAN SEA).

Contusion	480
Abrasion.....	212
Incised and punctured wounds	26
Wounds with loss of soft tissues	53
Lacerated wounds	691
Blind wounds.....	224
Perforated wounds	113
Pulverized wounds	43
Mutilated wounds	129
Burns and scalds	129
Concussion of labyrinth; rupture and congestion of tympanic membranes.....	116
Compound fractures, simple fractures and dislocations.....	237
Explosive wounds	570
Asphyxia	25
Drowned.....	716

Total..... 3,764

(This table exceeds the actual number of killed and wounded persons, as one person often received several wounds).

LOCATION OF THE WOUNDS IN THE KILLED AND WOUNDED:

Wounds of the head, face and neck	808
Wounds of the chest	157
Wounds of the abdomen	58
Wounds of the upper limbs	625
Wounds of the lower limbs	728
Wounds of the back, loin and buttock	189
Pulverization of whole body; burns and scalds of whole body	527
Asphyxia.....	25
Drowned.....	716

Total 3,833

(The number of wounds exceeds the number of killed and wounded as one person often received several wounds).

Referring to the above table we see that contusions and lacerated wounds came highest; this may be a specific characteristic of gunshot wounds. The great number of explosive wounds due to wounds inflicted at the time of sinking of the *Hatsuse* and the *Takusago*.

WOUNDS OF THE IMPORTANT PARTS.

To illustrate some of the more interesting wounds of important parts the following short descriptions are appended:

1. T. K., boy of the *Tokiwa*.—In the battle of Urusan on August 14th, 1904, a semilunar lacerated wound of 3.5 cm. was inflicted on the antero-inferior angle of the left parietal bone. On admission to Sasebo hospital on the 15th he was apathetic but there was no motor or sensory disturbance; on the 18th sudden attack of nausea and fainting followed by general convulsions appeared.

The wound was at once cut open, and the bone being fissured 3 cm. and slightly depressed, the part was trephined and a blood clot of 3 or 4 cm. in width and a half cm. in thickness was found. On removing it blood oozed from the diploic vein; this was stopped by plugging; after the operation two or three slight convulsive attacks occurred but after that he made a good recovery and was discharged on October 17th.

2. J. W., a signal man of the *Fuso*.—He was wounded on the signal station of Namakoyama on November 30th, 1904. A lacerated wound on the left parieto-occipital suture and a hole of the size of a pea in the bone was present from which cerebral substance was escaping.

On December 2nd he was admitted to the hospital ship *Kobe-maru*. At the time his mental power was confused but his speech clear and he complained of headache and shooting pain; there was no disturbance of sensation or motion, the hearing was clear but almost complete right hemiopia of both eyes was present. In the hospital ship depressed pieces of the bone were extracted and beneath the dura mater pieces of bone and blood clots were found which damaged the brain substance. On December 28th he was transferred to Sasebo Naval hospital. At his admission the wound on the head was nearly healed but the hemiopia was persistent, also headache and lightning pain toward the occipito-temporal region was complained of. In the hospital his eyesight recovered more or less but the course was tedious. He was transferred to Yokosuka Naval hospital on May 15th, 1905.

3. T. S., seaman of the *Nakhimoff*.—He was wounded on May 27th, 1905, in the battle of the Japan Sea and captured. In front and above the left parietal protuberance and to one c.m. left to the sagittal suture a wound of 1.5 cm. long was present which passed through the bone and reached to the brain. Reaction of the pupils were sluggish, the right lower limb was slightly movable but its action was greatly impeded, the action of the right upper limb was also lessened, urine was involuntarily discharged, knee jerks were lessened. The wound was cut open on the 29th soon after admission to Sasebo Naval hospital, where an inlet of about 1 cm. in the bone was found and an irregularly rounded disc of bone was extracted. No shell fragment was found in the wound. After the operation the action of the right limbs returned gradually and on July 17th he was discharged completely cured.

4. R. Y., stoker of the *Mikasa*.—Received the following wounds in the battle of the Yellow Sea on August 10th, 1904; Lacerated wound of the face with fracture of lower jaw; lacerated wound of the left eye; blind wound of the left thigh.

The lower lip was torn off, and the upper and lower incisors were lost, there were fractures in both rami of the lower jaw, besides destruction of the left eye and numerous small explosive wounds were present in the chest and upper and lower limbs. He was operated upon in the following way:

(1) The soft parts were separated from the body of the lower jaw and the fractured pieces were sutured with silver wire.

(2) A skin flap was cut up from the right cheek and right wing of the nose and brought down to form a lower lip.

(3) Adhesion of the upper lip to the left corner of the mouth was separated and a semilunar incision was made in the left cheek, the right corner being cut open wide so as to obviate disfigurement of the lips. By means of the above operations and the application of false teeth the patient's powers of mastication and articulation were much assisted.

5. H. S., senior sub-lieutenant.—He was wounded on March 27th, 1904, on the *Mikawamaru* when the second blockade of Port Arthur was being attempted. A large perforated wound on the left supraclavicular region, probably inflicted by the shell of a small-bore gun, was present, its inlet was nearly round, measuring 9.5 cm. vertically and 7 cm. transversely; the exit was oblong and smaller in size than the inlet, the two orifices being only separated by a flap of skin. A large wound cavity was formed and both the superficial and deep muscles on the left side of the neck were destroyed; also, the apex of the left lung and the brachial plexus were more or less injured. He suffered from spitting of blood and emphysema around the wound though the progress of the wound was very good; but during the whole course he suffered constantly from hyperæsthesia, neuralgic pain, loss of power, and eruptions like herpes of the left upper limb. He left Sasebo hospital relieved on June 26th, 1904.

6. N. F., bugler of the *Irtuisk*.—He was wounded on May 27th, 1905, in battle of the Japan Sea—having a penetrating wound of the size of a 20-sen piece on the right side of the sixth dorsal vertebral spine and passing deep into the spinal column. He had also a blind wound of the size of a pigeon's egg on the right shoulder. He suffered from hemiplexia and retention of urine, and died on June 9th of gradual exhaustion; at the post-mortem a fragment was found in the spinal cord by perforating through the right side of the base of the spine of the seventh dorsal vertebra; the cord above the injury was normal whilst the part below it had altered to a mud-like substance.

7. K. T., seaman of the *Iwate*.—He was wounded on February 9th, 1904, in the battle off Port Arthur. A penetrating wound of the right axillary region and a perforating wound of the right arm were inflicted. At first fracture of rib and penetration of the thorax were suspected, but after the injuries spitting of blood, shortness of breath and dullness below the

third intercostal space on the right side combined with moist rales on auscultation confirmed us in our suspicions. On February 27th the wound below the arm pit was opened wide and a fracture of the sixth rib found; after removing the fractured ends a foreign body was searched for, but nothing was felt. Subsequently several examinations with Roentgen rays revealed the presence of a fragment in the part corresponding to the inferior angle of the right scapula, after the resection of the eighth rib an iron fragment 1.7 c.m. dimension was extracted. After the operation the wound soon closed, but his chest was affected by burns from the Roentgen rays.

WOUNDED IN THE JAPANESE FLEETS DURING RUSSO-JAPANESE WAR.

From the Beginning to August 15, 1905.

BATTLES AND DATES. KILLED		WOUND' TOTAL		TERMINATION OF WOUNDED.			
				Deaths	Recov'ry	Inv'ld'd	Under Treat't
Attack on Port Arthur February 9, 1904.	3	69	72	6	59	3	1
Battle of Yellow Sea August 10, 1904.	65	161	226	6	183	17	5
Battle off Ulsan Bay. August 14, 1904.	36	96	132	10	80	3	3
Naval Art'y Brigade at Port Arthur From June 26 to Dec. 31	30	813	343	27	258	20	8
Battle of the Japan Sea May 27 and 28, 1905.	88	611	699	29	470		112
Oth'r petty But'les and Accidents—1904-05.	1,669	541	2,210	39	470	30	2
Total	1,891	1,791	3,682	117	1,470	73	131

Second as to the

SANITARY ARRANGEMENTS DURING THE WAR.

There is nothing special about the sanitation of a warship, either in peace or in war time; but it is to be observed that men-of-war during peace-time for the most part are stationed in naval

and other ports, where provisioning is easy and abundant and the crews can get their regular turns at shore-leave. In war-times the ships are mostly cruising away from land: fresh provisions and supplies are obtained with less regularity, and the shore-leave of the men is entirely stopped. Coaling at sea or at the base stations gives a constant succession of hard work to officers and men alike, and engineer sections are never at rest, not even when the ship is at anchor. Steam must always be kept up in readiness for any sudden emergency, the watches are more than doubled, the labors of crews are many times multiplied, and the hours of sleep and rest are reduced to the physiologically necessary minimum.

It is comparatively easy during war time to prevent the introduction of venereal diseases; on the other hand, infectious diseases, if once they break out, are serious obstacles to the fighting efficiency of the crew. Our surgeons have throughout the war exercised great vigilance, and, with the exception of an outbreak of dysentery, which put in a transient appearance before Port Arthur, we have been singularly free from all infectious maladies.

RATIONS.

Up to 1884, the men received a money-allowance instead of food, each ship had its own rations, and the crews were allowed to choose their own food, very much according to individual taste. This system encouraged the men in their fatal fondness for an over-proportionate amount of rice with their meals, and the disturbance of the physiological equilibrium caused thereby, led to a large and steadily increasing number annually of "Kakke" cases, which seriously interfered with the efficiency of the force. A reform in the food supply became an absolute necessity, and in 1884 a new system was adopted by which rations of food took the place of a money-allowance. The reform was not carried out without serious opposition. Several minor alterations have been made since that time, but the principle has constantly been maintained of observing a balance of nitrogen and carbon in the food supplied so as to preserve undisturbed the physiological standard requisite for health.

The following statistics will, I think, be found of interest.

Health average for the last three years in ships of the Standing and other Squadrons:

Total percentage of sick	3.87
Total percentage of men in bed	1.19
Total percentage admitted into hospital.....	0.66

Health average for 1904 in the combined Fleets:—

Total percentage of sick	3.32
Total percentage of men in bed.....	0.72
Total percentage admitted into hospital	0.26

Health average for January to June, 1905, in the Combined Fleets:—

Total percentage of sick	3.01
Total percentage in bed	0.65

I should observe that during war-times there are, of course, more cases of wounds and other injuries, but cases of venereal diseases become less and less frequent. We paid much attention to this subject before the outbreak of the war, bringing the subject before our men by means of lectures, moral instructions and private exhortations. In spite of all our efforts a good many of the men went beyond the limits of prudence during the last few weeks of waiting at Sasebo previous to the declaration of war, and we started for Port Arthur with a comparatively long list of venereal cases which, however, speedily succumbed to the treatment they received on board. Since that time the men have been perforce kept out of the way of contamination.

The amounts of the rations given during this war were increased by twenty per cent for all the men following the ordinary dietary scales, but the quantity of rice supplied was kept absolutely below twelve ounces, and by the observance of this rule we managed to keep the health of the whole force in a good condition for the period of the long campaign.

SCHEDULE OF DIET FOR THE CREW.

Daily:—Biscuit 6 oz., or bread 8 oz., rice 12 oz., crushed barley 4 oz., preserved meat 5 oz., or fresh meat 7 oz., preserved or fresh fish 5 oz., dried vegetables 3 oz., or fresh vegetables 15 oz., tea-leaves $\frac{1}{2}$ dram, roast barley 1 dram, sugar 6 drams.

Weekly (for cooking purposes):—Peas or beans $2\frac{1}{2}$ oz.,

wheat flour 2 oz., sugar $3\frac{1}{2}$ oz., soy 3 oz., vinegar $\frac{1}{2}$ oz., sesame oil 1 dram, salt $1\frac{1}{2}$ oz., fat 1 oz.

Nightly (for supper):—Biscuit $3\frac{1}{2}$ oz., or bread 5 oz., tea $\frac{1}{2}$ dram, sugar 4 drams.

Officers and warrant officers are allowed to receive money in lieu of rations. They are more careful in the choice of food and have more regard for the laws of health. An exception is also made in the case of torpedo-boat crews, who are likewise permitted to draw money in lieu of rations. The number of these men is, however, comparatively small, and they have frequent access to ports and small harbors where they can buy themselves supplies of fresh provisions. Both the officers and the men on board these boats are well aware of the importance of a regular and wholesome diet. They never fall into excess of any kind, and when bread is not to be procured, take a mixture of rice and crushed barley boiled together. The health of the torpedo-flotilla has been as excellent as that of the men on board the larger warships.

SUPPLY OF PROVISIONS.

Our ships in peace-time obtain their supplies when in the naval ports from the victualling office, and when in other harbors from the agents. During the present war two victualling ships were fitted out for the sole use of the Combined Fleets. These ships were provided with cold storage arrangements for keeping meat and vegetables. Bullocks also were carried on board, and slaughtered as necessity required. The beasts were examined by veterinary surgeons at the victualling office before being shipped, and again on board, after being killed, by the ship's surgeon.

Our warships carry no baking ovens, the bread being sent to them by transports from the base. During the foggy season last year, the transports were frequently detained by fogs, so that the bread grew mouldy and many thousand pounds of it had to be thrown away. This experience taught us to overbake our bread, and in this way the danger of its going mouldy was obviated. At one time we thought that it would be necessary to organize baking ships for the supply of the fleets, but the scheme never materialized. The two victualling ships are sent home alternately to lay in fresh supplies, but whilst one is at home, trans-

ports are continually bringing fresh provisions which they transfer to the victualling ship remaining with the fleet. In this way we have always managed to have a good supply of provisions for our ships, and there has never been any shortage. Some of the cruisers, however, when on scouting duty have had to make out with biscuits and canned meats, as all fresh provisions were exhausted owing to their length of absence from the base.

WATER SUPPLY.

Ships which possessed evaporators used distilled water for all purposes, and the supply was in all cases sufficient. Destroyers, torpedo-boats, and special service vessels are as a rule supplied from water-supply ships. There are two water-supply ships fitted with distilling apparatus which can distil about 300 tons of water each per diem, and two water-transports of 5,000 tons together, besides colliers and transports which served as auxiliary water-carriers. The ships were thus kept well supplied with water not merely for drinking and cooking, but also for washing and bathing, for both of which liberal provision was made, frequent fresh-water baths being very good as preventives of boils, etc. Salt water baths were always provided for the crews after coaling, together with an allowance of fresh water for use after the bath.

CLOTHING.

For use in cold weather, the following additional articles of clothing were provided:

Officers and warrant officers—1 woolen muffler, 1 pair of thick woolen gloves, 1 woolen undervest, 1 extra overcoat.

For the men—2 pairs each of thick woolen gloves, long woolen stockings, and thick-soled Japanese socks, 1 woolen undervest, 2 pairs of flannel underdrawers, 1 pair boots, 1 extra overcoat, 1 pair of straw boots. The crews of torpedo-boats and destroyers had further five extra blankets per man. For use in hot weather, large brimmed straw hats were specially provided.

As a result of our precautions we note that frostbites were almost unknown during the cold season throughout the fleet, and that at any rate no case of frostbite was admitted to hospital. None of the men that wore the straw hats when working on

deck during the hot weather suffered from sun-stroke, nor were any of the men in the engine room affected by heat-stroke in spite of the high temperature of that part of the ship. Our stokers were instructed to drink as little as possible. Their usual beverage was cool distilled water, but sometimes, as a treat, they were allowed water mixed with arrow-root and sugar.

WAR-TIME WORK.

During an engagement everybody on board a ship is working as hard as he can: but the hardest part of a seaman's work in war-time is coaling, an operation most laborious for officers as well as for the men. During the blockade of Port Arthur our men had from three or four to five or six hours of coaling on the average twice every week while at sea, and sometimes also at the base station.

On board the smaller cruisers, destroyers, and torpedo-boats in close contact with Port Arthur during the blockade, or engaged in scouting work, the work was incessant. Ordinary routine work was almost entirely suspended, and when the men were not at work they were either eating or sleeping to make up for lost rest. In any case the life of a man-of-war is far more strenuous in war-time than in peace, yet the good health of our men under these trying conditions is shown by the following statistics of body weights based on the results of our half-yearly examinations:

	kan.		kan.
March, 1901.....	15.811	September, 1902.....	15.305
March, 1903.....	15.783	September, 1903.....	15.235
March, 1904.....	16.009	September, 1904.....	15.577
March, 1905.....	15.997		

The daily average total of the crews in the Combined Fleets is 23,506.

RECREATION.

Life on board a man-of-war during a long expedition is always monotonous, and the men have no opportunities of going ashore. Our men have indeed been full of patriotism and have borne without a murmur all the hardships of their service; nevertheless we have felt that recreation in some form or other was necessary to their well-being.

Whenever opportunity has allowed the men have been encouraged to sing military songs, and to practice "Kenjutsu" (fencing), "Jiujutsu," and wrestling. Presents of various articles from home and abroad have given them great pleasure, and been a great incentive to renewed energy for their country's cause. Journals, papers and books sent by friends from every part of the world have been received with great joy; but the greatest of all pleasures have been the letters received from relatives and friends at home. Japanese ladies, and foreign ladies living in Japan, have been very active in works of benevolence for the men at the front, and this has been much more the case in the present war than it was in the China war ten years ago.

HOSPITAL SHIPS.

In the present war we have had two specially fitted hospital ships, the sister vessels *Kobe-maru* and *Saikio-maru*. They are ships of about 3 000 tons each, and each contains 186 beds, of which 18 are for infectious cases, and twelve for officers.

My idea at the beginning of the preparations was that it would be better to have two hospital ships of from 3,000 to 4,000 tons each, rather than one ship of larger dimensions. By having two ships we can make better provision for the speedy transference of our patients from the sick-berth of our warships to the wards of the base hospital where they can be treated with greater chances of success.

We have not attempted during the present war to transfer our patients by bringing the hospital-ship alongside of the man-of-war for that purpose. We have merely brought her somewhere near, and sent our patients across by steam launches or boats. We found that sick men's hammocks were the most convenient vehicles for transferring our patients from the ships to the boats.

The proper employment of hospital ships entails much thought and consideration from the Surgeon-in-Chief of the Fleets. Except at the battle of the Yellow Sea we had no need to send our wounded directly from the warships to the hospital ships. Our hospital ships were always stationed at the base during action: the Russians allowed theirs to accompany their squad-

rons, but unfortunately had but little opportunity of availing themselves of their services.

INFECTIOUS DISEASES AND THEIR PREVENTION.

The only infectious diseases which made their appearance on board our ships during the campaign have been enteric fever and dysentery. Cases of enteric fever will occur sporadically on war vessels even during peace-time. Typhoid fever showed no special increase during this period; whenever a case occurred the possible sources of entrance for the morbid germs were carefully investigated, but never with success. We are quite sure that the *virus* has in every case come from outside, and not been in the ship itself. We infer this from the fact that we have never had more than three or four cases occurring on any ship at any one time. The total number of typhoid cases from the beginning of the war to the end of June, 1905, has been 241. Whenever typhoid cases appear they are at once sent on board the hospital ships and everything in the way of bedding, clothes, etc., likely to have come in contact with the patient is thoroughly disinfected.

A few cases of dysentery broke out in the fleets during August and September of last year, while our ships were engaged in the blockade of Port Arthur. This outbreak caused us much anxiety for the time, but, thanks to the strenuous labors of our surgeons, the danger soon passed over. I believe that flies were responsible for the outbreak. These insects invaded the ships in enormous numbers whenever colliers or transports were brought alongside, and whenever boats were sent to inspect Chinese junks they invariably brought back clouds of flies with them. Everything was done on board our ships to exterminate the flies, and orders were given to have all food thoroughly well cooked before eating. In due time the dysentery disappeared. The total number of dysentery cases in the whole fleet amounted to 151 during the period ending June, 1905.

DISCUSSION.

Major THOMAS C. CLARK, Minn. N.G.—I move a resolution of thanks to be sent to the Japanese Government for sending the distinguished surgeon, Surgeon General Suzuki to this meeting, and our own thanks to

him for presenting to us this most valuable paper on the greatest naval engagements in modern times.

Medical Director JOHN C. WISE, U.S.N.—This is the most admirable paper I have heard for a long time. It is evident that the writer has been under gun fire. So far as the medical side is concerned, it is just what I would expect from a people who keep their houses and ships as clean as the Japanese do. Admiral Rojestvensky brought his fleet around Cape Horn and reported that on that long voyage of a force of 18,000 men, they lost eighteen. I don't think the Japanese can beat that. The Japanese was always a home squadron. At Port Arthur or anywhere they could refresh or get anything right from home. I simply want to do the Russian squadron justice. I think this paper is the most valuable contribution to naval surgery in modern times. No nation except the Japanese would think of plugging their ears, and testing the vision of the gunners before an action. The firing of great guns on shipboard is something one can't understand, unless he has experienced it. At Manila after the battle we were practically using the sign language, on account of the deafness produced. I consider that this paper settles many questions. The French and Spanish contend that wound stations should be installed, when a ship is under construction. This point has been elucidated in this paper. The French maintain that the medical department shall rest immobile during an action. I think this is the worst thing that could happen. Personally and for our Navy, I thank the Japanese government and Surgeon General Suzuki for his excellent paper.

Surgeon CHARLES F. STOKES, U.S.N.—I want to congratulate Surgeon General Suzuki upon his excellent paper and I heartily second what he has said in every detail and he has certainly considered every detail.

As senior operating surgeon on the *Solace* during the Spanish-American War it was my duty to outline a plan of work at the outset and conservatism and asepsis were our watchwords.

I condemn any attempt at elaborate operations on board fighting ships after an action in the presence of a hospital ship. At such a time, even in the best disciplined ship, there are certain to be conditions not conducive to the accomplishment of careful aseptic technic.

I can confirm General Suzuki's comments on the dangers of the conning tower.

I had as a patient on the *Solace* Admiral Cervera's chief of staff who while standing in the conning tower of the *Maria Teresa* had his right buttock and right forearm torn away by a shell fragment.

In our navy, relief stations are established at suitable places about the ship, where first aid is given and patients are prepared for transport. At sheltered points below at least two dressing stations are provided for. Here the wounded receive treatment of a more permanent nature.

A weak point not brought out is the method of transfer from fighting ships to the hospital ships. The fighting ship should be cleared of wounded

as soon as it is possible to move them without jeopardizing their chances of recovery and this transfer must be effected in two ways, namely, by boats, and by a trolley device a diagrammatic drawing of which I now show you. The devices for coaling ships at sea are not at all suited to this purpose and the transfer by small boats is often difficult and tedious. For putting patients over the side in a sitting position on the *Solace* we used a very simple apparatus resembling a child's swing with four supporting ropes and guards of wood that could be slipped up and down these ropes. This device gave great satisfaction.

I want to thank Surgeon General Suzuki for the privilege of hearing what I consider the best paper written on modern naval surgery.

Fleet Surgeon J. LLOYD THOMAS, R. N.—In addition to congratulating General Suzuki, I should like to congratulate the whole of the medical department of Japan on their remarkable progress in the last thirteen years.

A TRIBUTE TO A MILITARY MEDICAL OFFICER.

THE commander-in-chief of the Russian forces, in Manchuria, General Linewitsch, wrote a very complimentary letter to Prof. Zoege von Manteuffel on his leaving the seat of war to resume his duties at St. Petersburg. The general stated that 'God alone knew how many men the other had saved from death, and how many fathers and bread-winners had been returned to their families as the results of his efforts. Both in the hospitals at the rear of the army and in the front after the battles he had always been a model of devoted and blessed service. Heedless of shot and shell, he had been indefatigable in giving first aid to the wounded and aiding to remove them out of range of danger. Then, after the battles, instead of seeking a well earned rest, he went to the hospitals to devote his energies again to the relief of the suffering. As a model for the younger physicians and for all, his influence was far reaching.' Linewitsch concluded by expressing his gratitude personally and in the name of the Russian soldiery. Manteuffel passed through the campaign without a scratch, but was hit by a flying missile after his return to his home city. He has now recovered from the injury.

DIFFICULTIES IN THE DIAGNOSIS OF YELLOW FEVER AS SEEN ON THE ISTHMUS.

By HOLCOMB C. CURL, M.D.

PASSSED ASSISTANT SURGEON IN THE UNITED STATES NAVY;
SUPERINTENDENT OF THE COLON HOSPITAL.

THE diagnosis of yellow fever would seem, after reading the text book accounts of the disease, to be an easy matter. The description, as usually given, details a chain of symptoms which the most inexperienced could not overlook. You gain from it the impression of a yellow skin, flaming eyeballs, a high temperature, a slow pulse, black vomit and a high percentage of albumen in the urine.

The real study of a series of cases, as seen on the Isthmus, gives you a very different idea of it and the difficulties in diagnosis become very evident.

That the disease is more difficult of diagnosis here than in Cuba or our Southern States must be acknowledged when this opinion is voiced by such authorities as Colonel W. C. Gorgas, U.S.A., and Surgeon H. R. Carter of the Public Health and Marine Hospital Service.

This is due to the prevalence of the pernicious type of malaria here and its tendency to present symptoms which are confusingly similar to yellow fever.

Your diagnosis of this much studied fever must, of course, be from clinical symptoms alone, as no organism has, as yet, been satisfactorily identified with it.

The "chain" of yellow fever symptoms is usually considered somewhat as follows:

First.—The history.

Second.—The mode and time of onset.

Third.—The fever and pulse.

Fourth.—The pain and headache.

Fifth.—Epigastric tenderness and vomiting.

Sixth.—The injection of the conjunctiva.

Seventh.—The tongue and gums.

Eighth.—The stasis in the skin.

Ninth.—The jaundice.

Tenth.—The urine and general appearance of the patient.

Eleventh.—Nervous symptoms.

A, so-called, "typical" case of yellow fever could be described as conforming in general to the following type: The history shows a non-immune, probably on the Isthmus but a short time and during that time exposed to the bites of infected mosquitoes. After perhaps a slight prodromal period, (not usual) the disease begins with a chill and rise of temperature to, perhaps 102°. There is likely to be vomiting in severe cases or nausea at least.

All this usually occurs at night and the next morning the patient is unable to work and is willing to remain in bed. There is loss of appetite, headache and backache with great thirst. The pulse and urine (at this time) are not peculiar, being simply that of any fever. By the third day it is noted that the temperature has kept up with but slight remissions; there is a failure, on the part of the pulse, to follow the temperature and it is, on the whole, slower than you would expect to find it with the amount of fever present. It may be sixty to seventy per minute and of fair quality. The eyes are injected, tinged with yellow and, when they are rotated from side to side, pain is complained of; headache and backache continue; epigastric tenderness is well marked and vomiting has occurred; the tongue is not broad and heavily coated, although there may be a central area of white, while the tip and margin are a bright red and clean.

The tongue is an "active" one as distinguished from the flabby, tooth marked, slowly protruded tongue of many other fevers. The gums are spongy and may bleed at the touch.

The skin shows a bluish yellow stasis and on pressure, the yellowish white imprint of the finger returns but slowly to the general color. Some jaundice is probably present by this time, most noticeable in the eyes and on the trunk. It is not the bright icterus of an obstructive lesion of the bile ducts but a grayish yellow, difficult to describe. The vomiting may be specked with

blood or, if the case is severe, may be distinctly haemorrhagic. The urine is small in amount and contains albumen, at least a trace, probably much more, and indican is present: the leucocytes show nothing definite and the blood is not much altered.

The patient "looks sick;" he does not move much and lies flat on his back, low down in the bed: there is little or no desire for food, and water, which is asked for constantly, usually causes vomiting.

There is marked restlessness for the first two or three days but delirium is unusual at this stage. The mind is dulled to external impressions and all fear of the disease has begun to disappear and as many say—"they don't care whether they get well or not."

This is a "typical case" as seen on the third or fourth day: from this time on we may have any variety of symptoms from a mild case in which the temperature rapidly reaches normal and convalescence is rapid, to the cases which die rapidly of toxæmia or where there is suppression of urine with "black vomit" prior to death.

Now let us see how our cases vary from this standard" and how far from the "typical" they become.

First take the history:—it is pretty generally believed that residence for several years in a yellow fever district makes one an immune—yet we have seen patients die from "typical" yellow fever who have lived for many years in an infected district. A patient gives a history of having had yellow fever because he had a severe fever at some time when yellow fever was epidemic or it was diagnosed as yellow fever by some inexperienced medical man and he considers himself an immune until too late. The history, therefore, of a fever is uncertain unless he has an immune certificate signed by a thoroughly reliable diagnostician.

The mode of onset is of some importance but variations are not uncommon. It is considered by many men of experience that yellow fever ordinarily begins at night but they admit the numerous exceptions and when confused by malaria we scarcely consider this symptom as of importance.

Vomiting, usually present at the start, may be entirely absent or nausea only may be present to a slight degree. Projectile vomiting is rare. The initial chill is one of the most constant symptoms, varying in degree between decided limits.

The question of fever is one in which we find much of our difficulty.

When you realize that in parts of the Canal Zone as high as seventy per cent of the "apparently well" population show malaria parasites in the blood you can understand that most temperature charts are influenced by it and your typical chart is obscured by well marked rises and drops that interfere with your early diagnosis at least.

It has come to the point here that negative blood without a history of quinine has a slight weight in favor of its being yellow fever, but the finding of the parasite does not, to any degree lessen the possibility of the case being one of mixed infection; many of our worst cases and deaths occurred in patients with positive blood.

The pulse is usually, at some stage, decidedly slowed but we see cases die with a pulse never below 100: there is usually a drop in temperature and an increase of the pulse rate as death approaches.

Epigastric tenderness is a common symptom but may be absent in the most severe cases while vomiting varies from the slightest retching to profuse vomiting of altered haemorrhagic material or pure blood.

One patient may never vomit but the stomach be found full of "black vomit" at autopsy while another vomits quarts of altered blood and recovers.

The tongue in a mixed infection may be broad and coated instead of narrow and pointed but even then there are usually the red tip and sides in sharp distinction to the coated top.

The skin in yellow fever is the most interesting thing to the new-comer who has his mental picture from books alone.

The jaundice is not the bright yellow seen in an obstruction to the bile ducts but is a distinct and peculiar "ashy yellow" or "yellowish gray," something like a yellow tinge added to the

color of the skin in an anaemic person, poorly clad, on a cold day. Much deeper jaundice occurs in haemoglobinuric fever, but it usually is yellower or has a greenish cast.

It is quite common to have a decided, bright jaundice develop during convalescence, but it is accompanied by clay colored stools and runs the usual course of obstructive jaundice unassociated with yellow fever and should not be confused with the changes occurring in uncomplicated cases.

The changes occurring in the urine are probably more often discussed by diagnosis boards than any other symptoms. Some experienced men hold that there must be albumen before a positive diagnosis is possible, some consider that there must be at least enough to precipitate, while others say that cases may occur without a trace at any time. The general opinion, however, is that there should be at least a marked trace about the third day or appearing as the temperature falls.

We have seen ninety-five per cent (by volume) of albumen day after day and yet the patient recover, while others die with less than five per cent. Observers here on the Isthmus believe that albumen is a commoner symptom, not associated with yellow fever, than in Cuba or the United States. Chronic nephritis is very common and there is usually a history of repeated attacks of malaria as a possible factor in its production. It is considered that the presence of indican indicates yellow fever when taken with other symptoms, but its absence has no marked significance in a negative direction.

The amount of urine is usually small and varies in color.

Suppression is common and is one of the dreaded complications of this fever.

Recognition of a typical "facies" in yellow fever is claimed by many good diagnosticians: its value, from its very intangible nature, is a question of personal training only and varies in value with the experience of the individual.

The general appearance of a case of severe malaria fever is very much like that of yellow fever and is certainly confusing.

Probably the best way to diagnose a case is to consider the disease as showing itself by a chain of symptoms, varying in im-

portance. Take these symptoms one by one, and note whether positive or negative, discussing each with other members of the board. Finally balance them, remembering that at any given time several important symptoms may be absent and yet a positive diagnosis reached.

The "personal equation" of a diagnostician is well recognized and one man will be known to be of good judgement but rather inclined toward a positive diagnosis while another, equally skilled will have opposite tendencies. Experience on board duty, where every symptom is discussed and its value gauged, is one of the best trainings possible.

The following of all cases to convalescence or to autopsy is of the greatest value in the tallying your opinions and a thorough knowledge of the diseases which are likely to resemble yellow fever, such as malaria, denguis, simple continued fever of the Tropics, etc., are essential to successful diagnosis of this many-sided fever.

There are always found, in every epidemic, a number of cases of so mild a type, so lacking in many of the "essentials" of diagnosis and occurring in unexpected places, that the diagnosis is never made or only tentatively. These cases usually remain permanently in doubt and no board should give immunity certificates to them.

I will give two cases which will illustrate the difficulties we experience here:—

Mr. K. a white carpenter employed by the Isthmian Canal Commission, and having lived for but a short time on the Isthmus, reported at the hospital with fever; was in the hospital about eight days; had a chart that might have been either yellow fever or malaria (blood was positive), had no jaundice, vomiting, epigastric pain nor albumen, except a faint trace on the fifth day. He never was very sick and the diagnosis board after seeing him daily could not decide that the case was one of yellow fever. He left the hospital only two days after his temperature became normal and three days later was readmitted with tetanus from which he died a few hours later.

The findings at autopsy demonstrated without doubt that the man was a convalescent from yellow fever.

A case representing the opposite condition occurred a few days later:

J. D., white, aged 32 years entered the hospital with malaria, (subtertian) giving a history of frequent attacks prior to this. He had been

drinking and was weak and nervous: he rapidly developed a typical temperature for yellow fever, albumen increased to ten per cent. and then to thirty per cent.; decided stasis and jaundice occurred on second day; vomiting was frequent and epigastric tenderness was marked. Death occurred on third day after entering hospital.

A diagnosis of yellow fever had been made, but, as is our custom, the diagnosis board was present at the autopsy in which it was shown that there was absolutely no evidence of the disease, the liver, stomach, duodenum and the kidneys being negative: the spleen and vessels of the heart were filled with sub-tertian malaria parasites.

THE PROPHYLAXIS OF VENEREAL DISEASES IN THE ARMY.

THE importance which venereal diseases assume in causing disabilities among soldiers, makes valuable any suggestion to lessen these unhappy results. In *Le Caducée*, Granjux has taken up the subject of prevention in what seems a directly practical way. He acknowledges, at once, the difficulty of lectures to men unaccustomed to attentive listening for any long time; he recognizes the dangers to all concerned of cases of syphilis and gonorrhoea hidden from the regimental surgeon. Therefore with proper authority, permission was given to allow a number of soldiers from each squadron to visit the pathological museum so as to see the reality of the warnings already given in lectures. Groups of twenty-five men, the most intelligent and respected among the troops, were taken through and given a lesson, so to speak, in the actual consequences of venereal diseases on the health, not only of the individual, but also on his descendants. The men listened with lively interest. On their return to the squadron, these men were objects of much curiosity; and imparted their own impressions from the object lesson to their comrades,—as time has shown, with good results. This nucleus of men in a regiment, convinced of the evils, and respected by their companions, will sow good seeds of personal hygiene among all. The following principle seems to have been adopted in that regiment: "Every man who has a venereal disease ought at once to tell the regimental surgeon, that treatment may prevent grave consequences of this accident."—C. S. BUTLER.

Contemporary Comment.

THE WAR IN MANCHURIA AND THE WOUNDED BY SMALL ARM BULLETS.*

By PROF. H. NIMIER,

VAL-DE-GRACE.

PRINCIPAL PHYSICIAN OF THE FIRST CLASS IN THE
FRENCH ARMY.

TRANSLATED BY MAJOR CHARLES WILLCOX.

SURGEON IN THE UNITED STATES ARMY.

IN order to extract new knowledge from the letters and articles published thus far on lesions observed amongst the wounded in the war in the far East we must be more fully enlightened on the surgery of this war. In order to make a really instructive study we must wait until our colleagues, who were actors in the drama played, have had time to show their practical work, when doubtless they will confirm the facts established by experimental researches during peace and the experiences of still recent wars,—Turko-Grecian, China-Japanese, Spanish-American and English-Boer. The vulnerant agents and the reacting human beings in Manchuria are just as well hidden from public view as they were in other parts of the world during these recent collisions; nothing striking can therefore be set forth in the pathological anatomy of wounds; their clinical course will surely show us once more the influence due to the facilities of sanitary service in a victorious army and to its difficulties for the army in retreat and fighting at thousands of miles from its true base.

While the Russians still have a bullet of 7mm.62 calibre, the Japanese, at all events in their army at the front, use a projectile of 6mm.50, like that in service in Italy, Holland, Roumania, Sweden, Norway and Mexico. The balls weigh respec-

*Translated from *Le Caducée* under the direction of the Military Information Division of the United States Army General Staff.

tively thirteen grams seventy and ten grams fifty; measure in length 30mm., 50mm., and 32mm.; and have an initial velocity of 640 and 725 metres. Save in regard to difference in calibre, their ballistic properties are not shown in recently given data. It is important to know the scale of the remaining velocities up to distant points, so that the actual momentum of these bullets can be calculated and compared at various times of their course. We must remember that a great deal of the velocity of bullets of reduced calibre (6mm.50), is dissipated in the first 900 or 1,000 metres of their trajectory and that beyond 1,000 metres, they have a tendency to continue their flight with even less velocity than bullets of greater calibre. We have likewise shown that the kinetic energy of the latter is always greater than that possessed by bullets of 6mm.5, that on the other hand because of their surface of impact being less, they concentrate this effect, have a higher coefficient of pressure and consequently a greater force of penetration. This is however not always an advantage viewed from the point of the anatomic lesions produced. The larger Russian bullet, with a smaller pressure coefficient is arrested in an obstacle that it traverses after a flight in the air equal to that of a Japanese bullet. It expends all this kinetic energy thus causing anatomical havoc while its Japanese competitor continues its course, having lost only part of its energy; moreover as this energy of the Japanese bullet is already less than that of the Russian, the damage caused should be less. The conclusion may then be drawn that the Russian bullet has a greater "stopping power." But the facts of war again demonstrate that the more or less marked stopping power of bullets has not a decisive influence on the forward movement of a body of men who are fighting with the lust to conquer. He does not express a paradox who writes, "the stopping power of bullets, depends less on the whole, on the lesions that they produce, than on the morale of the men whom they menace." Now, in view of morale, the Japanese and Russians are an example that the older civilized nations should meditate on.

According to the latest information it seems that the Japanese infantry, augmented by calling out the reserves are actually

partly armed with the old Munster rifle that fires a projectile of 8 millimetres, weighing thirteen grams; that is to say one analogous to the Russian bullet with but a trifling amount less weight.

From the fact of this double arming of their adversaries our Russian confreres should be able to make a trustworthy comparison of the gravity of wounds made by bullets of small and large calibre in the same war. In this matter there appears to be already an indication of this in the sudden change of opinion ascribed to Dr. R. R. de Wredin, Chief Surgeon of the Manchurian Army. In a first letter addressed to the *Voyenno-meditsinsky Journal* and dated March 31, 1904, he says that he has been convinced that the Japanese rifle merits the title of a "humane" arm by proof of the fact that about one month after the battle of Turentchen about thirty-two per cent. of the wounded had returned to active duty. In a second letter, however, of September 2, Dr. de Wredin declares that "the battle of Liao-Yang offers the best illustration of the pharisaicalness and hypocrisy of those who speak of the process of civilization and of humane weapons of which I know nothing."*

It is useless to dwell upon the contradictory impressions put forth so rapidly by the same pen. They show once again that the epithet humanity when applied to the words rifles and bullets has not been fortunate except in contrasting the ideas of humanity and destruction. Actual projectiles kill and wound just as did their predecessors; Russian and Japanese statistics may perhaps tell us to which is due the greater destructiveness.

Furthermore it is perfectly well established that bullets of 8mm. kill as well as those of 6mm.5, at firing distances during battle which cause by their direct action alone insignificant injuries to the skin, aponeuroses and muscles. The small size of their orifices of entrance through the skin is an almost sure preventative of a wide spread infection; so the dangers undergone in war seem to depend above all else on the field where missiles are sown, that is on the organs wounded.†

**La Semaine Medicale*, 29 Mars, 1904.

†Nimier et Laval, *De l'infection en chirurgie d'armée* (Alcan 1900).

The actual amount of infectious material inoculated by the projectile is in the majority of cases very small; bullets of small calibre carry with them very little fragments of clothing, very little of the epidermis. According to Dr. Kholine of Moscow, you do not find any loss of substance at the bullet's point of entrance in cloth, it is simply cut through as by a dagger. Dr. Zeldovitch had made exactly the same report concerning 150 wounded at the Tien-Tsin hospital where in only one case did he find any suppuration in the track of the bullet and in this case the wound communicated with the buccal cavity. It would be an error to consider that in every case aseptic gunshot wounds were an exclusive appanage of the wounded in actual campaign. Its frequent occurrence has struck all surgeons who have taken part in recent wars; it has moreover been noticed in former conflicts and our Russian confreres have certainly not forgot that Pirogoff had noted immediate healing in the case of a number of his men who were struck by little bullets. And did not Chisholm during the War of the Rebellion, founded on the facts he observed, make a rule of attempting to secure surgical reunion of the orifice of entering balls?

If suppuration occurring in gunshot wounds was a fatal complication for many surgeons during the past century we should not forget the fact that very often projectiles were not the bearers of germs, but the surgeon's fingers and instruments were.

What is the evolution in Manchuria of aseptic or septic gunshot wounds of bones or joints? Information on this subject is lacking.

As to vascular lesions of members, they, as the English surgeons in the Transvaal have already reported, are very apt to be followed by false or true aneurisms. Right here arises the very important question of the influence of marching on the development of haematomata,—an influence unfortunately almost fatal because in the future as in the past a number of the wounded suffering from vascular lesions without fracture of the lower extremity must retire from battle by the means of their own force, that is to say they must walk away.

According to a correspondent of the *Lancet* (January 28, 1905), the Japanese hospital at Hiroshima received twenty-one

cases of aneurism during August 1904, one being of the vertebral artery below the transverse process of the axis, the others involving the second and third parts of the subclavian or the arteries of the limbs.

In addition to arterial aneurisms, it is well to follow the practice of former wars and to note the existence of a certain number of arterio-venous aneurisms amongst the wounded in Manchuria.

Makins,* from his experience in the Boer War has written an interesting article on the aseptic healing of gunshot wounds of nerves. He has called particular attention to their secondary involvement in true cicatricial tissue, due to reaction on neighboring tissues that had been bruised or torn. In many cases it was sufficient, if he removed this entanglement, to restore the function of the nerve trunk.

On the other hand the operations practiced in Japan by Dr. Tanaka in twenty-four cases of wounds of nerves were less rapid in their effect though a cure was oftener obtained. These were also cases where it was a question of involvement in scar tissue or in the callus of a fracture, and of neuritis or perineuritis due to a subacute inflammation of neighboring structures.

It would be interesting to know how frequent these inflammatory conditions are in wounds of the nerve trunks themselves. Formerly they were an habitual complication and the results on the sensibility, mobility and nourishment of the wounded limbs were greatly dreaded. On the relatively small ratio of invalids in the last wars appear to depend their present rarity.

It is hoped that sufficiently exact reports of wounds causing death on the battlefield may be obtained in order that we may establish laws concerning the true gravity of visceral lesions. It is undeniable that the viscera are often more tolerant of the action of bullets than the results of the past permitted us to believe. Then infection often carried away men who had survived the first shock of mechanical alteration of a viscus. In the future with small projectiles this will happen less frequently, sudden deaths will be rarer as will also infections, and the ultimate mor-

*Makins. Surgical Experiences in South Africa, 1899-1900.

tality will be correspondingly lower. It would be an error to always consider visceral wounds as mortal, as it would be to say it is an absolute rule that they are extraordinarily benign.

In regard to gunshot wounds of the cranium and brain amongst the wounded in Manchuria, we know nothing of interest as yet, but to the observations of the Boxer War, our Japanese confrere Hagen,* has been able to add and doubtless writings will appear that will enable us to add to our knowledge of the functions of the brain.

As in other recent wars, so in the extreme East gunshot wounds of the thorax have been particularly benign, let us add however: those that did not kill at once on the battlefield. M. Zeldovitch has seen soldiers, immediately after having their chests pierced by balls, march twenty or thirty kilometres on foot. M. Kholine relates the case of a man, who did not hesitate to go on with his duty after a ball had struck him in the second right intercostal space and perforated his chest to the rear. Penetrations with wounds of the lung but without functional troubles are already well known, and are facts; but in order that observations can deserve belief and credence we must know the path followed by a projectile with anatomical precision. Already the Transvaal War has shown that hemoptyses were in general moderate and of short duration, that hemothorax often got well without suppuration, and that subcutaneous emphysema and pneumothorax were relatively rare. It seems to be the same in the extreme East. In regard to gunshot wounds of the heart, we remain in reserve in view of the report of M. Zoëge von Manteuffel who has observed five cases without having had to interfere with them.

Finally abdominal lesions appear to have again shown a remarkably happy termination. M. Kholine gives a report of twenty-seven cases with a single death, and according to Zoëge von Manteuffel, Sonnenblick and Logachkine, peritonitis is liable to occur when the sick are hastily evacuated in vehicles without good springs. It is reasonable to presume that, contrary to the rules of practice of our confreres in civil life, the Russian and Japanese should plead for abstaining from operative measures in

*Hagen, *Archiv f. Klin. Chirurg.*, t. 74.

abdominal gunshot wounds. Nor do we find that any interference was practiced by Drs. Sonnenblick and Logachkine who in the battle of Turentchen, received twenty-five men with penetrating abdominal wounds and symptoms of peritonitis. Three of these died immediately, the other twenty-two placed in a convoy of evacuation organized thirty-six hours after the engagement were transported sixty kilometres, either in wagons, or horse litters. Four of these cases died from peritonitis.

As far as the lodgement of bullets themselves in the tissues is concerned, a great deal of their clinical interest has been lost, owing to the greatly lessened danger of infection that appears to be the rule. Amongst the wounded Russians under care of Dr. Sonnenblick have been counted twenty from whom the bullets had not been extracted, and our confrere declares that this has always been his practice except in those cases where there is a beginning gangrene of the skin (without doubt referring to bullets not lodged very superficially). He attributes moreover supuration of the track of non-extracted bullets to the jolting undergone by the wounded during evacuation, but we are not enlightened on the frequency of this complication. Nothing further on this subject is given us by a correspondent of the *Lancet*, who had the opportunity of seeing a collection of all the bullets extracted by Dr. Tanaka from the wounded in the Japanese hospital at Hiroshima. Our confrere calls attention to the deformities shown by these projectiles, well known deformities, from the simple imprint of the rifling of the barrel, flattening of the point or the base, to a bending at right angles. It would be interesting if he had specifically stated what appeared to him, whether these deformities were produced by impact against bones, or whether they had been produced by meeting some resisting object before entering the wounded. The indication of the character of cutaneous wounds of entrance would have settled the question and the same remark may be applied to a St. Petersburg correspondent, relative to wounds produced by the fire of a troop during the recent riots. He says, what is readily believed, that the men had received orders to fire at the ground a little distance ahead in order to limit the flight of their bullets, but the latter greatly deformed by ricochet produced great lacerations of tissue.

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Editorial Expression.

COMMENTS ON THE DETROIT MEETING.

THE Detroit meeting has passed into history as one of the most successful convocations of the Association of Military Surgeons. The beautiful old French City of the Straits was at its best and its best must be seen to be appreciated. The concentration of the social headquarters and the meeting place of the business sessions under one roof had great advantages. The famous hospitality of the Wolverine State upheld its



The Hotel Cadillac.

loftiest traditions. An unusual number of the strongest members of the Association were present; and friendship and harmony prevailed.

The Cadillac was admirably adapted to the purposes of the meeting and it is to be regretted that the management did not keep its pledge to provide accommodations for all the members making advance reservations, but forced a considerable number of members attending the meeting to seek lodgings elsewhere. Aside from this defect, however, the facilities afforded in the

hotel were all that could be required. The Ordinary made an excellent meeting room both in convenience of location, size and acoustic properties.

The active and sustained interest evinced by the oriental delegates, representing Japan and China was a conspicuous feature of the meeting, the addresses of Colonel Mareschal and Surgeon General Suzuki were a distinct attraction, while the papers of Colonel Rainsford and Fleet Surgeon Thomas were of distinct value.

The Informal Welcome extended on Monday evening by the Committee of Arrangements in the Flemish Room was a model of cordialty and afforded a delightful introduction to the exercises of the week. Here the social qualities of the occasion came strongly to the front and a spirit of most cordial good feeling was awakened.

The Tally-Ho ride about Detroit on Tuesday afternoon was a rare pleasure and the miles upon miles of beautiful boulevards, handsome homes, stately business blocks and enchanting parks were the source of continuous delight. The varied scenery afforded by mainland, river and island combined to form a charming panorama of picturesque loveliness.

The experiment of substituting an evening session for the morning public meeting hitherto held was an entire success. The residents of a city are too busily occupied during the day to attend the public meetings even of so attractive a gathering as the annual convention of the Association of Military Surgeons. But an evening session is peculiarly adapted to become a social event, as was fully demonstrated in Detroit, where the meeting hall was jammed to the doors with an enthusiastic audience.

The General Reception held in the Oriental Room of the Cadillac was one of the most brilliant assemblies ever seen in Michigan. The receiving line was headed by the Chairman of the Committee of Arrangements, followed by the officers of the Association and the foreign delegates, the latter arranged according to rank. The best people of the city were among the guests whom the Committee of Arrangements had invited to meet the Association and an entente cordiale was quickly established.

The judgment of the Committee in selecting the Temple Theater for the theater party of Wednesday evening was fully endorsed by its guests. The entire series of boxes, both mezzanine and proscenium, was taken for the purpose, an arrangement which afforded an opportunity for many little social interchanges during the entertaining vaudeville acts with which the evening was enlivened.

An interesting feature of the week was a visit on Wednesday afternoon to the scientific laboratories of one of the great pharmaceutical houses where unlimited hospitality was displayed toward the guests while numerous features of modern scientific pharmacy were entertainingly demonstrated.

Thursday afternoon was left vacant in order to enable the members to accept the many proffers of private entertainment which were extended to them. This occasion was seized by Surgeon General Suzuki for a display of the hospitality for which the Japanese have become so famous, and which materialized in a sumptuous banquet for ten guests at the Detroit Club in honor of the officers of the Association, at which many international compliments were exchanged and hearty and cordial international relations established.

The festivities of the week becomingly closed with an excursion on the United States Revenue Cutter "*Tuscarora*," up the Detroit River, across Lake St. Clair and up the St. Clair River through the St. Clair Flats to the Marshland Club where a dinner, the chief feature of which was frog's legs, was served and where the younger guests occupied themselves with dancing and music and the elders indulged in the graver amusements more welcome to them for an hour, when the party re-embarked and returned to Detroit, to separate at the wharf and pursue their several ways with a warm memory of hospitality and enjoyment ever before them.

An interesting bit of aftermath in connection with the meeting was the action of the Committee of Arrangements at its final session in unanimously making Lieutenant Colonel Julius F. Henkel, its Chairman, a Life Member of the Association, in recognition of his yeoman work in behalf of the convention.

THE OFFICERS OF THE ASSOCIATION.—1905-1906.

THE only bar to the success of the Fourteenth Annual Meeting was the absence of the President, Surgeon General Walter Wyman of the Public Health and Marine Hospital Service who was detained by imperative duties in connection with his Bureau. The administration of General Wyman had been attended with great success and characterized by marked tact, judgment and discretion. The loyalty of his own service to its chief was marked by the adhesion of over a hundred new members from their number, and by their active interest in the work of the Association.

The sessions of the meeting were however presided over with great dignity, urbanity and impartiality by the admirable first vice president, BREVET LIEUTENANT COLONEL ALBERT HENRY BRIGGS, Surgeon in the National Guard of New York, whom the Association honored by a unanimous election to the presidency. Colonel Briggs was born in Lancaster, N.Y., to Major Joseph Benson Briggs and his wife Altha Wilbor, on the 9th of September 1842. His early education was received at the common schools of his home, supplimented by the Aurora Academy and extended at the Genesie Seminary. Upon the attainment of his young manhood he began to manifest that peculiar affinity for the care of the sick which has so highly developed in his after life and was impelled to enter upon the study of medicine receiving the degree of M.D. from the University of Buffalo in 1871.

He now entered upon a professional career which has been marked by entire devotion to the care of the sick and ailing who have sought his advice with much attention to the broader lines of prophylaxis and sanitation. In recognition of the former he has been for many years one of the consulting staff of the Buffalo Hospital of the Sisters of Charity, and in prosecution of the latter he served six years as Health Officer of Buffalo. During this time he organized the Bureau of Vital Statistics and became the first Registrar of Vital Statistics.

He early sought all available means of coming into association with his fellow-workers in the field of medicine and became

a member of the American Medical Association, the American Public Health Association, the New York State Medical Association, the Erie County Medical Society and the Buffalo Medical Union, in the work of which he has been an active and energetic participant.

He was commissioned First Lieutenant and Assistant Surgeon of the Sixty Fifth Regiment of the National Guard of the State of New York on the 27th of October, 1879 and has continued to be a medical officer of that organization until the present time, a period of twenty-six years. He was commissioned as Captain and Assistant Surgeon on the 7th of June, 1881 and promoted to Major and Surgeon on the 23d of April, 1883. When on October 27th, 1904, he had served his regiment and state continuously for a quarter of a century he was honored with the brevet of Lieutenant Colonel for long and faithful service, being then one of but two members of the regiment who had been with it for so long. Few officers have been so uniformly loved and honored as Lieutenant Colonel Briggs has been by the men whom he has served so skillfully and faithfully during the nearly three decades of his military career.

When the Sixty Fifth was accepted for Spanish War service, unlike so many national guard surgeons, he stood by his command and took the field with it at immense pecuniary loss to himself, and from the 1st of May to the 19th of November, 1898, stood unfalteringly by his command. While at Camp Alger he was detailed as Sanitary Inspector of the Second Army Corps in which capacity his experience and ability rendered him of especial value.

Colonel Briggs has been rather a man of action than of theory and has not followed largely along literary lines. His paper on "Camp Sanitation," however, read before the New York National Guard Association at Albany in 1900, was published by the state for distribution among the troops.

His work in the Association of Military Surgeons of the United States has always been characterized by the highest efficiency. Elected to membership at St. Louis on the 20th of April, 1892, he has been a tower of strength in the organization.



**Brevet Lieutenant Colonel Albert Henry Briggs,
President.**

As chairman of the Committee of Arrangements for the Fifth Annual Meeting at Buffalo in 1895, he created a set of conditions which are still the talk of the "Old Guard;" in the same capacity in 1900 at the Ninth Annual Meeting in New York City, he achieved a success when failure had been predicted. He was appointed Chairman of the Transportation Committee in 1893 and was so efficient that he was reappointed year after year until his accession to the presidency enabled him to transfer the duty to another. In 1903 he was elected second vice president and in 1904, he was made first vice president, while this year the Association honored itself by selecting him as its chief executive.



**General Robert M. O'Reilly,
First Vice President.**

It was a foregone conclusion that SURGEON GENERAL ROBERT MAITLAND O'REILLY should be advanced to the first vice presidency as the representative of the army contingent in the Association. General O'Reilly's work as a medical officer of the army was appreciatively described in the JOURNAL upon his reaching the head of his bureau, and his work since that time has justified the most sanguine expectations of his friends, and his plans for the future contemplate still greater advances for his corps.

Under his inspiration the authority for the construction of the superb new Army General Hospital in Washington was granted by the last Congress and a board is now in session to determine upon its plans and exact location. This will provide suitable housing not only for the sick requiring special treatment but will afford accommodations for the work of the Army Medical School which has been so greatly enlarged in scope and quality by him.

The Navy is represented by the able and distinguished chief of its bureau of medicine and surgery, REAR ADMIRAL PRESLEY MARION RIXEY, whose superb work in administration of his department is only equalled by the professional ability which made him the chosen medical adviser at the White House for so many years and gained for him the confidence of so many of his fellowmen. He has been an invariable friend to the Association and under his countenance the naval membership has grown to be one of the most important factors in the organization.



**Rear Admiral Presley M. Rixey,
Second Vice President.**



**Asst. Surg. Gen. George Tully Vaughan,
Third Vice President.**

The Public Health and Marine Hospital Service is right worthily represented by ASSISTANT SURGEON GENERAL GEORGE TULLY VAUGHAN upon whose shoulders falls the mantle so splendidly worn during the last four years by his chief. Assistant Surgeon General Vaughan in addition to his wide experience in his own corps, where he has attained this highest possible position, has had army service as Major and Brigade Surgeon during the Spanish-American war. He is a practical sur-



**Major James Evelyn Pilcher,
Secretary and Editor.**

medicine and sanitation.

The selection of the officers elected at Detroit insures a continuation of the policy which has so successfully brought the Association of Military Surgeons of the United States to its present brilliant state of prosperity. As heretofore advantage will be taken of every opportunity to contribute to the advancement of the methods of relieving the ill and injured in war and of preventing the development of disease among troops in peace or in campaign, in garrison or in the field, whenever or wherever medicine may be of service.

geon of great skill, a surgical teacher of high ability and is the author of a standard textbook of surgery and many important papers upon surgical topics.

The Association continued the Secretary and Treasurer for another year. Their work has been perhaps more in the eye of the Association than has that of any of the other officers. They have done their best and look forward to another year's labor for the advancement of the Association and of military surgery,



**Major Herbert Alonzo Arnold,
Treasurer.**

A DEPARTMENT OF MILITARY HYGIENE •
AT WEST POINT.

THE members of the Association of Military Surgeons of the United States and all others interested in the progress of medico-military affairs, will be pleased to learn that the study of military hygiene has at last been placed upon a satisfactory basis at the United States Military Academy at West Point. The order of the Secretary of War erecting the department is dated October 19, 1905 and reads as follows:

"A department of military hygiene is hereby established at the United States Military Academy. The senior medical officer at the academy shall be the head of the department and shall act as a member of the academic board."

The authority having been granted for the proper position of instruction in military hygiene in the Academy, it now remains for a course upon the subject to be outlined and developed.

A FITTING MEMORIAL TO WALTER REED.

IT is gratifying to learn that General Orders No. 172, dated October 18, 1905, from the War Department states that:

"The Army General Hospital which will be constructed in the District of Columbia under the authority conferred by the act of Congress approved March 3, 1905, is designated and will be known as the Walter Reed United States Army General Hospital, in honor of the late Major Walter Reed surgeon, whose demonstration of the mode of transmission of yellow fever is of the highest public importance."

This recognition of the work of Major Reed is so highly merited that no voice will be raised otherwise than in the most cordial approval and no more appropriate monument could have been erected in memory of our late distinguished comrade.

News of the Services.

THE following officers of the several services named were elected to Active and Associate Membership in the Association at the recent ballots of the Executive Council:

UNITED STATES ARMY.

- *Captain W. F. Breakey, Michigan V. I.
- Dr. Charles W. Johnson, U. S. A.
- *Dr. Pemberton Lundy, U. S. A.
- Lieutenant Edgar W. Miller, U. S. A.
- *Dr. William E. Musgrave, U. S. A.
- *Dr. James C. Rutledge, U. S. A.
- *Captain Richard Gordon Simmons, Virginia V. I.
- *Dr. Guy Stone, U. S. A.
- Captain Henry D. Thomason, U. S. A.
- *Dr. William T. Thackeray, U. S. A.
- *Dr. Nelson Walton Wilson, U. S. A.
- Lieutenant John Dixon Yost, U. S. A.

UNITED STATES NAVY.

- Assistant Surgeon George Stimpson Hathaway, U. S. N.
- Assistant Surgeon Curtis Boyd Munger, U. S. N.
- *Passed Assistant Surgeon Delos L. Parker, U. S. N.

PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

- Acting Assistant Surgeon Albert L. Derbyshire, P. H. & M. H. S.
- Acting Assistant Surgeon Ralph Knowles, P. H. & M. H. S.
- Acting Assistant Surgeon William Elmo Kurtz, P. H. & M. H. S.
- Passed Assistant Surgeon H. A. Stansfield, P. H. & M. H. S.

NATIONAL GUARD.

- Captain Ralph Apted, Michigan N. G.
- Lieutenant Truman W. Brophy, Illinois N. G.
- Captain William Anderson Burns, Ohio N. G.
- Major Thomas E. Carmody, N. G. Colorado.
- Lieutenant Charles D. Center, Illinois N. G.
- Major George Morrison Coates, N. G. Pennsylvania.
- Captain William Nelson Decker, Massachusetts V. M.
- Lieutenant James Cory Ferguson, Minnesota N. G.
- Lieutenant John Vernon Frazier, Michigan N. G.
- Captain Alfred A. Jenkins, Ohio N. G.
- Major William Battle Malone, N. G. Tennessee.
- Lieutenant Edward August Meyerding, Minnesota N. G.
- Captain Sidney Johnston Meyers, Kentucky S. G.
- *Lieutenant Walter R. Parker, N. B. Michigan N. G.
- Brigadier General Warren E. Putnam, Vermont N. G.
- Passed Assistant Surgeon Burt Russell Shurly, N. B. Michigan N. G.
- Colonel Charles Robert Silverthorne, Kansas N. G.

*Not now in active service.

Major Edgar Francis Sommer, Indiana N.G.
Lieutenant Charles Jesse Wehr, Ohio N.G.
Lieutenant George E. Wilkinson, Illinois N.R.

OTHER SERVICES.

*Surgeon Louis G. Contri, U.S.A.
Major E. B. Echlin, Canadian A. M. S.
*Surgeon Charles Henry Todd, C. S. A.

Dr. George F. Adair, U.S.A., ordered from Fort Wadsworth to Sea Girt, N.J. for temporary duty.

Lieutenant John H. Allen, U.S.A., ordered from the Presidio of San Francisco to Fort Sill.

P. A. Surgeon J. W. Ames, P.H.&M.H.S., ordered from Cairo, Ill., to New Orleans, La., for special temporary duty.

P. A. Surgeon G. L. Angeny, U.S.N., ordered to the Philadelphia Naval Hospital.

Major William H. Arthur, U.S.A., appointed member of an Examining Board at Washington.

Dr. James K. Ashburn, U.S.A., returned to Fort Lincoln from duty with troops in the field.

Lieutenant Frank C. Baker, U.S.A., ordered before the Presidio Promotion Board for examination.

Assistant Surgeon N. W. Baker, U.S.N., ordered to the Washington Naval Hospital.

Major William B. Banister, U.S.A., granted a month's leave.

Surgeon Charles Edward Banks, P.H.&M.H.S., ordered from Flomaton, Ala., to Magnolia Bluff, Fla., for special temporary duty.

P. A. Surgeon W. H. Bell, U.S.N., ordered from the *Dixie* home to await orders.

Surgeon F. L. Benton, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander from March 3, 1903.

P. A. Surgeon T. D. Berry, P.H.&M.H.S., ordered to Gulfport, Miss., for special temporary duty at or near Scranton, Miss., and thence to New Orleans, La., also for special temporary duty.

Captain William N. Bispham, U.S.A., promoted from Lieutenant, and granted three months leave.

A. A. Surgeon P. C. Blackburn, U.S.N., ordered from Naval Recruiting Party No. 2, to the St. Louis naval recruiting rendezvous.

Medical Director G. P. Bradley, U.S.N., ordered from the Washington Naval Hospital to the Portsmouth Navy Yard and to command the Portsmouth Naval Hospital.

Dr. Fred D. Branch, U.S.A., returned to Fort Wood from sick leave.

Captain Thomas S. Bratton, U.S.A., granted seven days leave and ordered before the Washington Promotion Board for examination.

*Not now in active service.

P. A. Surgeon J. M. Brister, U.S.N., ordered to the *Philadelphia*, with additional duty at the Puget Sound Navy Yard.

Assistant Surgeon E. M. Brown, U.S.N., ordered from the Mare Island Navy Yard to the Naval Medical School.

Surgeon C. D. W. Brownell, U.S.N., ordered from the *Iowa* home to await orders.

Dr. William E. Cass, U.S.A., ordered from the Philippines to Vancouver Barracks.

Lieutenant Walter C. Chidester, U.S.A., ordered before the Presidio Promotion Board for examination.

Lieutenant C. H. Connor, U.S.A., ordered from the transport *Sheridan* to Fort Stevens.

Lieutenant Harold W. Cowper, U.S.A., granted a month's sick leave.

Lieutenant George H. Crabtree, U.S.A., ordered from Fort Jay to duty with the Isthmian Canal Commission.

Lieutenant Colonel Louis W. Crampton, U.S.A., ordered from St Louis to Grand Haven, Mich. and return.

Major William D. Crosby, U.S.A., ordered home from the Philippines February 15, 1906.

Lieutenant Frederick A. Dale, U.S.A., granted a month's extension of leave, and ordered before the Presidio Promotion Board for examination.

Dr. Oscar F. Davis, U.S.A., ordered from Fort De Soto to Jefferson Barracks.

Dr. Luis G. de Quevedo, U.S.A., ordered from San Juan to Cayey, P.R. for temporary duty.

Surgeon C. M. de Valin, U.S.N., ordered from the Philadelphia Naval Hospital to the *Lancaster*.

A. A. Surgeon Hugh de Valin, U.S.N., resigned from the Navy, commissioned as Assistant Surgeon P.H.&M.H.S. and ordered from Washington to New Orleans for special temporary duty.

Lieutenant John R. Devereux, U.S.A., granted thirty days leave.

Medical Director Dwight Dickinson, U.S.N., ordered from the Portsmouth Navy Yard to command the Washington Naval Hospital.

Medical Inspector S. H. Dickson, U.S.N., ordered to command the Norfolk Naval Hospital.

Medical Inspector N. H. Drake, U.S.N., ordered from the Norfolk Navy Yard home to await orders.

Surgeon A. W. Dunbar, U.S.N., ordered to the Mare Island Naval Hospital.

Captain Basil H. Dutcher, U.S.A., ordered to the Philippines, December 5, 1905.

Major Rudolph G. Ebert, U.S.A., ordered to the Philippines, January 5, 1906.

Major Guy L. Edie, U.S.A., returned to duty as Attending Surgeon in Washington from duty with the Secretary of War in the Philippine Islands.

Lieutenant James F. Edwards, U.S.A., ordered before the Presidio Promotion Board for examination.

Surgeon M. S. Elliott, U.S.N., ordered from the Norfolk Naval Hospital to the *Florida*.

Assistant Surgeon B. Elmore, U.S.N., resignation accepted to take effect December 1, 1905; ordered from the Naval Medical School to the Washington Naval Hospital, and thence to the Washington Navy Yard.

P. A. Surgeon A. M. Fauntleroy, U.S.N., ordered from the *Philadelphia* to the Tutuila Naval Station, with additional duty on the *Adams*.

Surgeon J. G. Field, U.S.N., ordered from the *Solace* to the *Celtic*.

Assistant Surgeon T. G. Foster, U.S.N., ordered from the Norfolk Naval Hospital to the Naval Medical School.

Surgeon F. M. Furlong, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander from June 20, 1903.

Lieutenant Nelson Gapen, U.S.A., granted a month's leave with permission to visit the United States.

Dr. Fletcher Gardner, U.S.A., relieved from the Philippines and ordered to Fort Crook on the expiration of his leave.

Surgeon W. M. Garton, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander from March 12, 1903.

Surgeon James M. Gassaway, P.H.&M.H.S., ordered to join his station at St. Louis, Mo.

Surgeon M. F. Gates, U.S.N., ordered from the League Island Navy Yard to the *Charleston*.

Assistant Surgeon General H. D. Geddings, P.H. & M.H.S., redetailed for duty in the Bureau.

Assistant Surgeon A. J. Geiger, U.S.N., ordered to the Mare Island Navy Yard.

Major Robert J. Gibson, U.S.A., ordered from Fort Logan to Fort Adams.

Captain Harry L. Gilchrist, U.S.A., promoted from Lieutenant, October 3, 1905.

Major James D. Glennan, U.S.A., appointed member of an Examining Board at Washington.

P. A. Surgeon M. W. Glover, P.H.&M.H.S., ordered from Victoria, B. C. to Vancouver, B. C.

P. A. Surgeon Joseph Goldberger, P.H.&M.H.S., ordered from Mobile to New Orleans for special temporary duty.

P. A. Surgeon J. B. Greene, P.H.&M.H.S., ordered to Fort Gibson, Miss., for special temporary duty.

Lieutenant Robert B. Grubbs, U.S.A., granted a month and a half leave.

Dr. Samuel A. Grunwell, U.S.A., on leave from Fort Barrancas.

Surgeon J. A. Guthrie, U.S.N., ordered to the League Island Navy Yard.

Assistant Surgeon Marshall C. Guthrie, P.H.&M.H.S., commissioned as such August 30, 1905.

Lieutenant Levy M. Hathaway, U.S.A., ordered to Fort Thomas, and granted two months leave.

Assistant Surgeon R. G. Heiner, U.S.N., ordered from the Washington Navy Yard to the *Scorpion*.

Dr. John R. Hereford, U.S.A. granted three months leave from the Philippines.

P. A. Surgeon R. E. Hoyt, U.S.N., commissioned with the rank of Lieutenant to date from May 8, 1905.

Captain Deane C. Howard U.S.A., ordered before the Washington Promotion Board for examination.

Surgeon E. O. Huntington, U.S.N., ordered from the *Allegheny* to the Navy Department.

Assistant Surgeon H. F. Hull, U.S.N., ordered from the Philadelphia Naval Hospital to the Naval Academy, and from the Naval Academy to the New York Naval Hospital.

Major Frank R. Keefer, U.S.A., ordered home from the Philippines February 15, 1906.

Dr. John P. Kelly, U.S.A., ordered from Fort Riley to the Presidio of Monterey.

Captain James M. Kennedy, U.S.A., granted a month's leave, but returned to the Presidio General Hospital relinquishing the remainder of leave.

Dr. James S. Kennedy, U.S.A., granted a month's leave.

Dr. Fred T. Koyle, U.S.A., returned to Fort Bliss from leave of absence, and ordered to Fort Ringgold for temporary duty.

Lieutenant Lloyd LeR. Krebs, U.S.A. ordered from the Presidio of Monterey to Fort Bayard.

Surgeon H. L. Law, U.S.N., Retired, ordered home from the Boston Naval Recruiting Station.

Captain Theodore C. Lyster, U.S.A., promoted from Lieutenant, October 3, 1905.

Captain William J. L. Lyster, U.S.A., promoted from Lieutenant, October 3, 1905.

Major Walter D. McCaw, U.S.A., appointed member of an Examining Board at Washington, member of a Board to investigate various systems of personal identification, and ordered to represent the Medical Department of the Army at the International Sanitary Convention of American Republics.

Assistant Surgeon C. H. McConnon, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (j. g.) from September 21, 1905 and ordered to the Naval Medical School.

Surgeon F. E. McCullough, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander from June 9, 1903 and ordered from the *Pensacola* to the *Albatross*.

P. A. Surgeon A. J. McLaughlin, P.H.&M.H.S., ordered from Hamburg to Berlin, Germany.

P. A. Surgeon John McMullen, P.H.&M.H.S., ordered to Gulfport, Miss., for special temporary duty at or near Scranton, Miss., and thence to Jackson, Miss. also for special temporary duty.

Surgeon G. M. Magruder, P.H.&M.H.S., granted a month's extension of sick leave.

Captain Charles E. Marrow, U.S.A., ordered to temporary duty as Attending Surgeon and examiner of recruits in Chicago, and returned.

Assistant Surgeon R. H. Michels, U.S.N., ordered to the Kansas City naval recruiting rendezvous.

Major Edward R. Morris, U.S.A., ordered from Fort Slocum to Fort Logan.

Surgeon L. Morris, U.S.N., ordered from the *Florida* to the *Iowa*.

P. A. Surgeon J. M. Moore, U.S.N., ordered from the Chicago naval recruiting rendezvous to await orders and thence to the New York naval recruiting rendezvous.

Captain Edward L. Munson, U.S.A., ordered before the Washington Promotion Board.

Dr. George Newlove, U.S.A., ordered from San Francisco to accompany troops to Fort Oglethorpe, and granted two month's leave.

Assistant Surgeon E. H. Old, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (j. g.) from September 21, 1905, and ordered to the Naval Medical School.

Assistant Surgeon G. M. Oman, U.S.N., ordered to the Norfolk Naval Hospital, and commissioned P. A. Surgeon with the rank of Lieutenant to date from December 18, 1904.

P. A. Surgeon E. G. Parker, U.S.N., ordered from the Tutuila Naval Station to the *Pensacola*, with additional duty at the San Francisco Naval Training Station

P. A. Surgeon E. A. Peck, U.S.N., ordered from the *Bennington* to the *Concord*.

Captain Elbert E. Persons, U.S.A., promoted from Lieutenant, October 3, 1905.

A. A. Surgeon R. H. Peters, P.H.&M.H.S., ordered from Livingston, Guatemala to Zacapa, Gualan, Las Amates and Puerto Barrios for special temporary duty.

Assistant Surgeon F. E. Porter, U.S.N., ordered from the *Dixie* to the New York Naval Hospital.

Captain Irving W. Rand, U.S.A., granted one month's extension of leave.

Major Thomas U. Raymond, U.S.A., ordered to the Philippines, January 5, 1906.

Dr. James Reagles, U.S.A., granted a month's leave with permission to apply for an extension of a month.

Assistant Surgeon E. U. Reed, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (j. g.) from September 21, 1905, and ordered to the Naval Medical School.

Assistant Surgeon T. W. Reed, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (j. g.) from September 21, 1905 and ordered to the Naval Medical School.

Lieutenant John J. Reilly, U.S.A., granted six months sick leave.

Lieutenant Charles R. Reynolds, U.S.A., granted a month and a half leave, and ordered before the Washington Promotion Board for examination.

Lieutenant Edwin W. Rich, U.S.A., ordered from Fort McDowell to Fort Ontario.

Surgeon T. W. Richards, U.S.N., detached from the Baltimore naval recruiting rendezvous and granted thirty days leave.

A. A. Surgeon F. A. Richardson, U.S.N., ordered from the *Scorpion* to the Baltimore naval recruiting rendezvous.

Captain Thomas L. Rhoads, U.S.A., promoted from Lieutenant, October 3, 1905.

Captain Chandler P. Robbins, U.S.A., promoted from Lieutenant, October 3, 1905.

Lieutenant William Roberts, U.S.A., order for duty in the Philippines revoked and ordered from Fort Hamilton to Fort Jay for temporary duty.

Captain Edwin R. Schreiner, U.S.A., ordered to the Philippines December 5, 1905.

Assistant Surgeon H. Shaw, U.S.N., ordered from the Baltimore naval recruiting rendezvous to the Chelsea Naval Hospital.

Major Henry A. Shaw, U.S.A., ordered from Fort Adams to Fort Slocum.

Dr. James E. Shellenberger, U.S.A., ordered to Fort Brown for temporary duty.

Lieutenant E. D. Shortlidge, U.S.A., granted thirty days extension of leave.

Dr. Robert E. Sievers, U.S.A., returned from Fort Yellowstone to Fort Harrison.

Surgeon Raymond Spear, U.S.N., ordered from St. Petersburg, Russia to the Asiatic Station.

A. A. Surgeon W. J. S. Stewart, P.H.&M.H.S., authority for thirty days leave revoked.

P. A. Surgeon Allan Stuart, U.S.N., ordered from the Chelsea Naval Hospital to the *Pensacola* with additional duty at the San Francisco Naval Training Station.

Dr. Frank Suggs, U.S.A., returned to Fort Mansfield from sick leave.

Surgeon J. C. Thompson, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander from March 3, 1903 and ordered to the Naval Recruiting Station, Providence, R. I.

Dr. Charles W. Thorp, U.S.A., ordered from Fort Ethan Allen to Plattsburgh Barracks for temporary duty, and returned.

Dr. Clarence A. Treuholtz, U.S.A., returned to Fort Bayard from temporary duty, in Alaska.

Captain Albert E. Truby, U.S.A., ordered to accompany troops from the Presidio of San Francisco to Fort Leavenworth and return, and granted a month's leave.

P. A. Surgeon R. H. von Ezdorf, P.H.&M.H.S., ordered from New Orleans, La. to Century, Fla. for special temporary duty.

Surgeon L. L. von Wedekind, U.S.N., ordered from the *Lancaster* to the Chicago naval recruiting rendezvous.

Lieutenant William E. Vose, U.S.A., ordered before the Presidio Promotion Board for examination.

Captain Sanford H. Wadhams, U.S.A., promoted from Lieutenant, October, 3, 1905.

Dr. Clarence A. Warwick, U.S.A., ordered from the Philippines to Fort Mott.

Dr. Francis M. Wall, U.S.A., ordered from Fort Fremont to Fort Oglethorpe.

Assistant Surgeon E. C. White, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (j. g.) from September 21, 1905 and ordered to the Naval Medical School.

Dr. J. Samuel White, U.S.A., returned to Fort Snelling from duty with troops on practice march, and granted two months leave.

Lieutenant Allie W. Williams, U.S.A., ordered before the Presidio Promotion Board for examination.

Captain Llewellyn P. Williamson, U.S.A., resigned to take effect December 15, 1905, and granted two months and ten days leave, with permission to go beyond the sea.

Captain James S. Wilson, U.S.A., granted a month's leave.

A. A. Surgeon C. K. Winn, U.S.N., ordered from the *Caesar* home to await orders; orders changed to the Omaha naval recruiting rendezvous.

Lieutenant Frank T. Woodbury, U.S.A., granted a month's leave, and ordered before the Presidio Promotion Board for examination.

Dr. Oscar W. Woods, U.S.A., ordered from Vancouver Barracks to Fort Bayard.

Assistant Surgeon E. L. Woods, U.S.N., appointed Assistant Surgeon with the rank of Lieutenant (j. g.), October 14, 1905 and ordered to the Naval Medical School.

Dr. Stephen Wythe, U.S.A., ordered from the Department of California to the Philippines.

Current Literature.

NAVAL HYGIENE.*

IN this handsome work Captain Belli of the Italian Naval Medical Service, instructor in Hygiene in the University of Padua, gives to the profession a most admirable text book adapted both for the naval medical officers, officers of the line and naval constructors. The work is divided into two parts treating respectively of the hygiene of ships and personal hygiene. The former begins with a historical review and takes up the various features of construction, atmospheric conditions, ventilation, illumination, water for drinking purposes, bathing, washing, etc., considers the question of the infirmary, and closes with disinfection. The second part takes up the consideration of the conditions imposed by life aboard ship and treats of them in great detail. The numerous illustrations illuminate the text with much advantage and the work is a distinct advance along the lines of its subject.

NOTHNAGEL'S KIDNEYS, SPLEEN AND HEMORRHAGIC DISEASES.†

THE eleventh volume of the American edition of Nothnagel's Practice takes up the subject of diseases of the kidney and spleen and hemorrhagic diseases and brings out, as would be expected, the latest features of the pathology and treatment of these affections. The American editor has added

**Igiene Navale. Manuale per medici di bordo, ufficiali navigante e costruttori navali.* By CAPTAIN C. M. BELLi, Italian Naval Medical Department. 8vo; pp. 532, with 185 illustrations. Milan, Societa Editrice Libreria, 1905.

†*Nothnagel's Practice: Diseases of the Kidney, Diseases of the Spleen, and Hemorrhagic Diseases.* By Drs. H. SENATOR and M. LITTEN of Berlin. Edited by JAMES B. HERRICK, M.D. of Chicago. 8vo; pp. 816, with illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

much however to the value of the book by his contributions upon cryoscopy, the mosquito in its relation to malaria, the x-ray in the treatment of leukemia, etc. The concluding volume of the work is to be devoted to the heart and is announced for early publication.

THE DIARY OF A LATE PHYSICIAN.*

THE editor of the Doctor's Recreation Series, Dr. Charles Wells Moulton, confers a real favor upon the public in providing a condensation of the classical collection of medical stories of the late Samuel Warren whose legal novel "Ten Thousand a Year" has recently been produced by Cyrus Townsend Brady, under the title of "Tittlebat Titmouse." Dr Moulton's work is thoroughly adapted to the public of the present day and is handsomely illustrated with fine photogravures and superbly printed and bound.

MOYNIHAN'S ABDOMINAL OPERATIONS.†

THE prominence which abdominal surgery has taken of late years has naturally resulted in a large crop of works upon the subject. Many of these have been noticed in this Department, although but few are to be considered in the same class with the handsome treatise on the subject, just issued by Mr. Moynihan, whose previous contributions to the field of abdominal work have been such as to give especial weight to any utterance which he might make along this line. In the present book his reputation is fully justified and it will undoubtedly have a large vogue throughout the English speaking world, a vogue entirely justified by the practical and explicit character of its teachings.

**The Diary of a Late Physician.* Being a new edition of selected passages by Samuel Warren. Arranged by CHARLES WELLS MOULTON. Vol. VI of the *Doctor's Recreation Series*. 8vo; pp. 379, with four full page plates. Akron, Ohio, The Saalfeld Publishing Co., 1905.

†*Abdominal Operations.* By B. G. A. MOYNIHAN, F.R.C.S. 8vo; pp. 695, with 250 illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

DISEASES OF WOMEN.*

A WORK upon any professional subject by a distinguished teacher along the line of his writing necessarily demands careful consideration upon the part of the profession. In Dr. Hirst's case the reputation acquired in the lecture room of the University of Pennsylvania is sustained by the valuable text-book just reissued. The first edition was valuable and complete, but in the second edition an opportunity has been given to still further enhance the value of the work. The illustrations are particularly fine, most of them being original and largely made direct from the subject. The teachings are conservative, accurate and correct.

ANDERS' PRACTICE OF MEDICINE.†

WITH the rapid growth of medical knowledge frequent revisions are necessary in order to keep a textbook on the front line of medical knowledge. In the successive printings of Dr. Anders' valuable manual since the fall of 1897 such changes as were necessary to reflect the latest state of the science have been made from time to time. In this seventh edition a special revision is apparent by which modern medicine is clearly mirrored. Among the new subjects touched upon are Rocky Mountain Spotted Fever and Myasthenia Gravis, while especial attention has been devoted to tropical and subtropical affections.

KEY TO THE UNITED STATES PHARMACOPŒIA.‡

THIS little book contains in a form convenient for field use all the essential information concerning the components of the Pharmacopœia and may be of material use as an index to that stately volume.

***A Text Book of Diseases of Women.** By BARTON COOKE HIRST, M.D. Second edition, revised and enlarged. 8vo; pp. 741, with 701 illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

†**A Text-Book of the Practice of Medicine.** By JAMES M. ANDERS, M.D. Seventh edition, revised and enlarged. 8vo; pp. 1297, with numerous illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

‡**The Era Key to the U. S. P.** 32mo; pp. 83. The Pharmaceutical Era, 90 William St., New York, N.Y.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

A PLEA FOR THE UNIFICATION OF THE DUTIES OF MEDICAL OFFICERS OF THE ARMY AND NAVY.

By CHARLES F. STOKES, M.D.

SURGEON IN THE UNITED STATES NAVY.



THE world has seen, the methods of six different military establishments in actual warfare at various times during the past seven years, and it would seem by this time that some conclusion might be reached as to what is of value and what is not in our particu-

lar field of work. In the study of these campaigns we should consider carefully in each case the causes that led up to the war as well as the psychologic, dietetic, in fact all the racial characteristics and home conditions of the individuals engaged. Not only should the sanitary features of battle-fields and camp sites be taken into account but also what is fully as important, the diseases common to the inhabitants of the region and those then prevailing. The common carriers of disease,—flies, mosquitoes, dust and bad water,—may abound and loose camp sanitation prevail still if the germs of disease are not there our sick list will not rise above the normal. It is generally safe to discard as valueless the early reports of unqualified observers for it is well known that

statistics can be juggled to such an extent that most unjust and misleading conclusions might be drawn from them.

It is probable that the lessons to be learned from the great conflict recently brought to a close have not been unearthed and that we do not yet know the true workings of, and actual results attained by, the medical departments of the nations so lately under arms. It is a regrettable fact that this war has flushed some of the most remarkable military surgical historians the world has known.

The paper of one of these historians was read before this Association and was published in the *JOURNAL* afterward with the challenging discussion in full, but when the reprint of the article came from the hands of the printer the discussion had disappeared, and one in reading might well get the impression that the members of this Association had accepted in silence and with approval assertions astonishing in the extreme. The intent of this particular writer was without doubt perfectly proper, but I fear he swallowed without the necessary grain of salt all that he heard during the early weeks of the war.

To this class of writers and particularly to the practice of reprinting papers freed of combatting or confirmative discussions, I would ask your earnest condemnation, as both are destined to do us great injustice and material harm.

Believing the time is ripe for an earnest attempt to better conditions in some situations, the writer has presumed to set forth in this paper his convictions as to how this end can best be accomplished.

In what respects have we fallen short? Where have we failed? First, we have lacked uniformity of personnel, material and the conception of our duties. Second, we have not properly reached that vital link in our most important chain,—the enlisted man.

Laying aside the great problems in sanitation, in military surgery and in the science of war generally where do we find the graduates of West Point and Annapolis spending the best years of their lives? We find them teaching and drilling enlisted men. They themselves do not pull a lock-string, nor do they point a

gun, but they carefully direct the vital units of their particular establishments in these important matters. This government wisely spends millions of dollars in the education of these officers in order to reach, guide and govern this, *sine qua non*, the enlisted man.

How close does the medical officer get to this individual? Does *he* drill him daily? Are the line officers taught first-aid methods and military hygiene in a reasonable way so that they who come so closely in contact with the enlisted personnel can tell the individuals of that personnel how to care for themselves, what to avoid and how to avoid it? Is the enlisted man made to realize that for every gun pointed at an enemy it is reasonable to suppose that an enemy will point a gun at him *with the same intent*? No! We train and drill constantly for the disabling of the enemy but leave the prevention of trouble through wounds in our own ranks in sorry shape. We must bear in mind that no amount of skill in the medical personnel in the rear can count for much after the first link in the chain of asepsis is destroyed, or in the case of disease after the infective organism has once gained a congenial soil. Prevent the lodgment of the germs of wound-poisoning and disease in the enlisted man at the very start and we shall find our way decidedly less thorny.

Can this be accomplished? The service-seasoned pessimist will tell you that it cannot be done. Let no one present for a moment think that the writer hopes for any cardinal results from the effort he is now making, still he is convinced that persistent and consistent hammering will one day awaken enthusiasm where enthusiasm should be aflame and where it can best do good. It is his intention to work in the future, as in the past, for uniformity in the details of duty, as far as possible, in all the military medical and surgical organizations of the army, navy and state forces, and to place within the reach of the enlisted personnel simple facts in military hygiene the importance of which they can appreciate and which it will be possible for them to make use of in the prevention of disease; furthermore, to give them a practical working knowledge of first-aid methods and such simple and effective dressings that the least intelligent individual in any

command (this man must always be considered in every undertaking) can apply them satisfactorily to himself, or to a fallen comrade, as necessity may demand.

Conditions behind the firing line have received well merited attention; these problems will be left in other hands.

Let us now discuss the question of uniformity.

The basis of our existence is the same no matter where we may be performing our duties. We are confronted with grave sanitary problems both afloat and ashore, and always will be, from the very nature of things. To be sure much of the time in the modern ship we find the sanitary conditions satisfactory, still it was by no means always so. Let me quote a few lines from the superb paper of Dr. J. R. Tryon, formerly Surgeon General of the Navy, on "The Relation of Naval Architecture to Proper Sanitation" (Surgeon General's Report, 1892). Surgeon General Tryon says, 'Sir Richard Hawkins, who lived early in the seventeenth century mentions that in twenty years he himself had known of 10,000 deaths from scurvy alone and it is stated that in 1739 the vessels in the squadron at anchor at Spithead stank to such a degree that they infected (?) one another, and that the men became so dangerously ill from want of air that they were put ashore to recover their health. The English channel fleet in 1780 was so overrun with scurvy and fever that it was unable to keep the sea after a cruise of only ten weeks. During the year there were transferred from the fleet to one naval hospital over 5,000 cases of continued fever and nearly 1,500 cases of scurvy. In the same year the British West Indian fleet, having a strength of 12,109 men, the mortality was 1,518 from disease alone, and but few of these deaths were due to yellow fever. It was in the same century that the Spanish ship *Oriflamme* on her passage from Manila to Acapulco, a voyage in those days of nearly six months, was found at sea with her whole crew dead on board.' It is hard to realize, today, that such a state of affairs could have existed. Five unfavorable influences, sanitary and dietetic were largely responsible for this gruesome story, viz,—bad air, drainage into the bilge, moisture between decks, improper food and contaminated water. While we have fully appreciated the im-

portance of these matters of sanitation for a long time it is only within a very short period that these unfavorable influences have been eradicated from the ships of our navy, and, then only after a hard struggle.

The times are changing however and sanitary suggestions are now pretty generally given the consideration they deserve.

We can readily see that service conditions are really much alike in ships and forts; there, we may expect the same horrible, infected and mutilating wounds from shell fragments and splinters to predominate; there, the transportation problems are both difficult and hazardous, especially so in the case of ships. While in the field the ambulance problem may be trying, we of the navy have the small boat, and ship to ship transfer to offset it. The fact must not be lost sight of that we all meet the same peace and war problems of sanitation ashore. There has been no war in recent times in which the sailors and marines have not played a conspicuous part on shore. These few lines will, I trust, show that while on the surface our duties appear to differ widely they are in reality much the same, in other words, the term military surgeon may be aptly applied to us one and all.

If what has been said is true then there is good ground for a plea for the unification of the details of our duties. The surgeon of the naval militia should be familiar with the methods employed in the army and navy, in fact, these methods should be as much alike as service conditions will permit.

Throughout the United States earnest efforts are being made to unify and standardize medical educational methods and institutions, and to regulate the state board requirements so that there shall be an approach to uniformity. It has been long recognized that the requirements for entrance into the medical corps of both the army and navy call for a liberal general and professional education, in fact, Professor W. H. Welch of the Johns Hopkins University in his address at the closing exercises of the Naval Medical School last spring said, "It is well known that the army and navy have always demanded such a high degree of efficiency in their candidates that they, the successful candidates, represent the best standard of medical education in this country." It is

safe to say, then, that our preliminary training and the requirements for entrance are much the same.

The courses of instruction at the service schools are quite alike except in a few minor details. It gives me great pleasure to tell you that our sister school of the army has always been most willing to lend us a helping hand, and that we of the navy have not hesitated to grasp that proffered hand, and the contact has been most beneficial to us.

In the process of rounding out our young medical officers we have received assistance of inestimable value from many officers of the superb service our esteemed President, Dr. Wyman, so ably leads. Why should not some, if not all, of these officers have a military medical rub up, from time to time, at the service schools?

If the graduates of these schools acquired nothing more than an esprit de corps, and a unified conception of the duties required of them in their respective corps, the existence of the schools would be justified. Not many years ago each medical officer had to work out his own salvation, practically alone, unguided and unaided. The service schools are molding a military medical policy that should reach the state forces and there be implanted as well. Both are open to the medical officers of the national guard. The naval militia should make every effort to have legislation enacted that will entitle its officers while attending the naval school to the same pay and emoluments that are given to medical officers of the national guard under instruction at the Army Medical School. From the foregoing it will be seen that our service training is much the same.

Is it possible to unify the practical workings of our military surgical knowledge in the every day details of military life? In the writer's opinion it can be done. Is such a unification desirable? Most emphatically yes. In time of war the enlisted men would have all been trained in substantially the same way, they would be using the same type of first aid dressing, they could be amalgamated with any organization and would look forward to their first-aid and sanitary drills at least with confidence and composure. There should be one method and one routine.

It is rather late after fighting has begun to expect to accomplish much along these lines. Today there are almost as many different schemes of organization and drill as there are different bodies of fighting men, and especially is this true of the first-aid dressings.

How can this unification of policy and material best be brought about? In the opinion of the writer by the establishment of a joint board composed of experienced, optimistic, aggressively intelligent and liberal minded medical officers of the army and navy. The personnel of the board should include representatives of the offices of the surgeon-generals of both services of the faculties of the service schools and such other officers as may be deemed fitted for this duty.

Before this board untried devices could be studied, new methods considered and various plans of organization worked out with immense profit to all services. This board would be in a position to work in conjunction with the various line boards now organized and could be looked to to assist in solving some at least of the knotty problems that confront the head of each corps.

It is time that a unified educational crusade in sanitation, and other medical and surgical matters be launched among the officers of the line, so that through them the enlisted man can be reached. The joint board could outline plans and unify the kind of instruction to be given.

The ignorance of sanitation and other military medical matters in some quarters is appalling and should not be so. Our efforts at betterment are often combatted by reason of this very lack of knowledge. The so-called military mind can oftentimes see nothing but the killing,—not of course for the killing's sake, but for winning the day; that mind might be won over if it could be convinced that our disease-preventing measures, and humane efforts, among the wounded, meant such an increase of effectives to do the fighting and a decrease in impediments, elsewhere, that they would really be worth while from a purely combatant point of view.

Without question this Association has been of inestimable value in the direction of unifying the duties of military surgeons

for which the writer is now pleading. The JOURNAL teems with information of value to us, while at the meetings of the Association we are invited to discuss, unhampered and unrestricted, the various topics there presented. The social side of these meetings has a decided charm aside from the benefit to be derived from informal meetings with fellow workers in our chosen field.

Let us now consider the second shortcoming with which, in the opinion of the writer, we are handicapped today, namely,—failing to reach the enlisted man.

Not long ago the writer was asked if he would prepare some simple hints on military hygiene and first-aid for the naval drill books to be used by officers and men of the landing-force ashore without a medical officer. The opportunity was promptly embraced in order to place within the reach of the officers and enlisted men simple and efficacious directions in these matters. These chapters are intended for the use of the least intelligent layman in the service and not for the medical officers.

Believing that each and every enlisted man should be provided with a *few* printed instructions in pamphlet form to be considered his own property to be kept by him for reference and for his guidance, the writer would be pleased with orders to prepare such a pamphlet. He is fully cognizant of the attitude of many experienced officers in regard to teaching enlisted men hygiene. In the old way he agrees with them that it is impracticable but in a reasonable way it is perfectly possible. It must come to them through the line officers immediately in command of them otherwise they will not take the instruction seriously. Take for instance the simple habit of lip-drinking, horse-fashion. If the company officers by practice and example taught the men this simple precaution, the numerous diseases passed around through common drinking cups would disappear and our sick lists would be appreciably shortened.

In the matter of the training of men to apply the first aid dressings, at the outset have it clearly shown to officers in the field and to officers fighting gun-crews, that they can expect a goodly percentage of wounded, and that the wounded must look to *themselves* for relief at such times, and that prompt and proper

care often means a fighting man saved to the company, or to the gun, or that he will soon be returned if efficiently treated at the start. From a military-business point of view, then, it will pay to teach them first-aid methods.

Give the men a liberal supply of dummy dressings that can be practiced with again and again at drills and they will soon become sufficiently dextrous to effectively apply them in case of need. Fifteen minutes a day will be sufficient time for the drilling. Let the men take a part at a time, say, the head to begin with. Let each man apply a dressing to himself, then to a comrade, and let each be taught the methods of checking hemorrhage for that region and let that be the drill for that particular day. The next day another part can be taken and so on until they are familiar with caring for the whole body. The drills should be practiced with the same regularity as the drills with guns.

If a drill-period were ninety minutes would it be unreasonable to ask that fifteen minutes of that time be devoted to a drill destined to save many lives and untold suffering? We would find the same percentage of men using the first-aid dressings intelligently as are using the fighting pieces effectively and that is nowhere near one hundred per cent.

This drilling is clearly the work of the line officer. The training of the line officer for this drill is clearly the duty of the medical officer. The instruction should be given in accordance with a properly approved and unified plan emanating from the joint board at headquarters.

At the present meeting of the Association the writer will demonstrate the features of a first aid dressing devised by himself, the cardinal virtue of which is that it can be repeatedly used in the suggested drills.

When we consider the elaborate provision made for the protection of the life of a ship in the shape of armor, and its cost, it is surely our duty to insist for the sake of humanity that proper provision be made for the care of the wounded both afloat and ashore.

CONCLUSIONS.

If it is desirable for the armed forces afloat and ashore to be equipped with the same types of weapons of offense and the same

types of ammunition, it is certainly wise to equip and train their medical departments as nearly alike as conditions will permit.

It is now possible on ships of war to place the dangers of bad sanitation beyond the reach of the enlisted men while actually on board ship. No matter how well prepared our sanitary regulations on shore may be, however, whether for a campaign, an expedition, or a camp, they are largely dependent for success upon the behavior of the enlisted men in observing them. We cannot safeguard the men in this situation, therefore, the enlisted personnel should be drilled in the bare essentials and practical workings of camp hygiene. It is pretty generally accepted that our greatest successes in military surgery have come where wound infections have been prevented at the very start by the use of occlusive dressings applied at the earliest possible moment. It is impossible for the medical officers themselves to treat the wounds of battle sufficiently early to prevent infection, therefore, the men should be trained to apply the immediate dressings themselves.

The number of medical officers in a command is not sufficient to give the men the proper personal attention in the drills in military hygiene and first-aid that they should have. The general instruction by the medical officers should continue as it is now carried on, while the every day practical drill should be given by the line officer in immediate command of the men. He is their idol, as a rule, and instruction by him in these matters would be received by the men as if the success or failure of the military project depended upon it, and oftentimes, in reality, it does. Fifteen minutes daily drill would soon solve the problem.

It is earnestly hoped that this plea for the unification of duties, the further education of the line officers, and the instruction of the enlisted men, will meet with the hearty support of those in whose hands lies the accomplishment of these commendable ends.

.SUPPLEMENTAL REMARKS BY SURGEON STOKES ON
MISLEADING STATEMENTS.

In the effort at bettering sanitary and surgical conditions in the services, that I am now making, I am particularly pleased

that Major Seaman has promised to be present for I feel that he can, if he will, help us materially, in the discussion that is to follow.

The remarks that I am about to make bear not only upon the paper that he read last year before this Association, at St. Louis, but also upon much that he has said and written along the same lines since in the assumed role of reformer.

Some of his statements, intended no doubt to do good, have mislead so many estimable people, that I trust he will take advantage of this opportunity to correct the wrong impressions that have been made. Not only have these misleading and erroneous assertions done serious injury and great injustice to the military surgeons of this country and to this Association, but they have jeopardized the reputation of the author of them as a military surgeon and sanitarian, and have placed our friends the Japanese in an embarrassing position.

His statistical reports of the Spanish-American War and the Civil War are so at variance with the official records, that I am sure as a matter of justice to the military surgeons of this country, when his attention is called to these errors, he will rectify them with fitting publicity.

Dr. Seaman stated that for a campaign *lasting six weeks* the proportional battle casualties to those of disease was one to fourteen. The report of the Secretary of War, 1898, pages 5 and 715 give the following:

Killed and died of wounds,	270
Died of diseases,	400

(Dr. Seaman makes the latter figure 3,862).

Proportion of battle casualties to disease one to one and one-half. This includes the losses in the 5th Army Corps from its organization at Tampa to its disbandment at Montauk.

Dr. Seaman makes the proportion of battle casualties to disease in the Civil War one to five while the proportion as shown by the medical and surgical history of the Rebellion was one to two. Harrington and Woodhull give a one to five proportion for the Philippines but there a guerilla warfare was carried on with a small exposure to bullets and an enormous exposure to tropical infections.

Sickness in the Second Army (Oku's). Dr. Seaman stated that only 40 out of 5,609 sent home died. He must have been in error in this; forty cases of sudden death occurred at the front but all serious cases were transferred at once to the base hospitals in the rear. Of these 5,609 cases 5,070 were cases of beri-beri a disease with a death rate-almost as high as that of typhoid fever. In the Second Army consisting of three divisions of 19,000 men each, there was a sick list of 24,642 in seven months, which gives an annual morbidity-rate of 740 per thousand which is not very different from that given by other armies under favorable conditions. We see none of this in Dr. Seaman's reports.

"Beri-beri is almost unknown there," is the statement of Dr. Seaman before the Committee on Military Affairs, House of Representatives. The medical statistics of the war have not yet been given out but it is known that the First Army had in four months 4,069 cases of beri-beri; and the Second Army, 5,070 cases in seven months and it is said that the losses to the effective force of Nogi's army before Port Arthur was 25,000 from beri-beri alone.

I sincerely hope Dr. Seaman will take advantage of this opportunity to study, discuss and revise his statistics, and if he is not prepared to do so today, I trust he will be so prepared Thursday when he reads his paper. He reports a loss of a *fraction* of one per cent. for the first six months of the war.

In his paper read before this Association last year, Dr. Seaman said, "The medical officer is omnipresent. You will find him in countless places where in an American or British army he has no place. He is as much in the front as in the rear. He is with the first screen of scouts with his microscope and chemicals, testing and labelling wells so the army to follow shall drink no contaminated water." That statement, it has been said, shows that Major Seaman was ignorant of the scope and limitations of bacteriology, in these situations, upon which, as we know, military sanitation is largely founded. I will ask Dr. Seaman to tell us today what technic these sanitarians employed, what they sought, and how and for what purpose they used their microscopes with the scouts?

In the same paper the doctor says, "Indeed the men here looked remarkably strong considering their trials, far more so than the wan but courageous Tanaka whom I saw again in September with an infected finger, and a temperature ranging above 100°, but who was at that time doing his ten to twelve capital operations a day." That is a lovely picture! The tyro would know that the very fundamental principles of aseptic surgery would be violated in operating with an infected finger even though the hand were gloved. There must be a mistake here. In clearing up this misleading assertion I hope the doctor will tell us what these ten to twelve daily capital operations were.

Dr. Seaman can do the cause of military surgery and military sanitation in this country no greater service than that of revising his statistics and correcting statements made by him which have mislead not only the laity generally but the members of the medical profession as well, unjustly placing the medical corps of the army and navy in an unfavorable light.

Should he so desire, I shall be very glad to render Major Seaman any assistance I can in bettering conditions in any way which is the basis of my plea today.

DISCUSSION.

Dr. ANITA NEWCOMB MCGEE: I wish to speak of Dr. Tanaka, to whom reference has been made. He was operating surgeon at the Hiroshima Hospital where I was stationed as Supervisor of Nurses. Major Seaman visited us one afternoon in September, 1904, while Dr. Tanaka was suffering from an infected finger, and was told of the many major operations being done daily. But Dr. Tanaka himself performed no operations at all while his finger was sore. As long as he was able to be at the hospital he supervised the operations, but did not touch the patients himself. The same is true of his chief assistant, who also had an infected hand about the same time. In justice to the Japanese surgeons, I think this should be said.

Surgeon C. F. STOKES, U.S.N.: In closing let me say that no one appreciates more than I do what has been done by the Japanese Army and Navy medical officers. Their work was superb but I cannot hear us credited with fourteen to one without combatting the assertion particularly when the records do not show it, and such a statement is grossly misleading.

THE REAL TRIUMPH OF JAPAN OR THE CONQUEST OF THE SILENT FOE.

BY MAJOR LOUIS LIVINGSTON SEAMAN, M.D., LL.B.
OF NEW YORK.

LATE SURGEON OF UNITED STATES VOLUNTEER ENGINEERS.

BEFORE presenting my paper as announced on the program, Mr. President, I desire to refer to another matter.

On Tuesday last, when I was at the University of Michigan with Dr. Senn, Dr. Griffith, Dr. Stanton and Dr. Abbott, inspecting the Medical Department of that institution, our colleague, Dr. Stokes, took occasion on this platform to make certain references to some statistics I had given in an address before this Association last October in St. Louis, and I wish to take this occasion to thank Dr. Stokes for focusing the attention of this Association upon those figures, and to call attention to certain other statistics and data quoted by him, and then to leave the matter entirely to the consideration of your honorable body.

I hold in my hand a copy of the *Detroit Free Press*, of September 27th, which our colleague has assured me contains substantially a correct report of his statements, and in which he refers to me as follows:

"Dr. Seaman stated [in his address at St. Louis] that in a campaign lasting six weeks the proportional casualty in the Spanish-American War was one death in action to fourteen from disease. But the Report of the Secretary of War for 1898 gives the following: killed and died of wounds, 270; died from disease, 400. Dr. Seaman makes the latter 3,862. The proportion of battle casualties to deaths from disease was, according to official report, one to one and a half."

I fortunately succeeded in finding some copies of that St. Louis address, Mr. President, and I hand you a duplicate in order that you may make it certain that I do not misquote.

After referring to certain statistics relative to the surgical conditions of the Russo-Japanese War, as I had found them at Hiroshima, on page 25, paragraph 1, of that report, I stated as follows:

But it is in that far more terrible and pathetic class of losses—the needless sacrifice of 400 lives to preventable disease, for 100 who die legitimately (as history has shown occurs in every war) that the most astounding reduction will be shown. If the testimony of those conversant with the facts can be accepted, supplemented by my own limited observations the loss from preventable disease in the first six months of this terrible conflict, will be but a fraction of one per cent. This, too, in a country notoriously unsanitary. Compare this with the fearful losses of the British from preventable disease in South Africa—or worse—with our own losses in the Spanish-American War—where in a campaign the actual hostilities of which lasted six weeks the mortality from bullets and wounds was 268 whilst that from disease reached the appalling number of 3,862, or about fourteen to one.

I ask you, gentlemen, if there is anything in that statement that limits the statistics of that campaign to six weeks, and I ask you if this emasculated quotation is a fair one?

I have here also a copy of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS for July, 1905, where, in an admirable paper on Military Hygiene, Lieutenant Robert Smart makes the following statement: "During the five months of fighting of the Spanish-American War 2,565 men died of disease against 350 killed or dying of wounds."—Nor does this include the great number of deaths that followed. Nor does it include the 75,000 or more who were invalided and the 60,000 pension claims which have since saddled on this nation a financial obligation that will take half a century to erase. General Griffith whom you have just heard, says that at Chickamauga alone there were something over 600 deaths from typhoid. Are these fatalities and similar ones at Montauk Point, Camp Alger, Tampa and Porto Rico, to be excluded from the statistics of this war, which my friend states were covered by the total number of 400 from disease? So much for that indictment.

I now come to Dr. Stokes' second charge.

Quoting again from the *Detroit Free Press*, he says: "Dr. Seaman makes the proportion in the Civil War one to five while the real proportion, as shown by military and surgical histories was one to two."

In reply, I again refer to Lieutenant Smart's paper in the July number of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS, from which I read the following extract: "During our own Civil War, the Union forces lost a total of slightly over 300,000 soldiers of whom only 95,000 were killed in battle or died subsequently of their wounds and the Confederate loss in the same struggle amounted to about 200,000, three-fourths of whom died of disease."

I will further answer this charge in my paper which is to follow.

Dr. Stokes having paused long enough to shift his scene and put on a Manchurian setting continues: "The Doctor [Seaman] says, concerning sickness in General Oku's army that only forty out of 5,609 soldiers sent home, died. He must have been in error there. Forty cases of sudden death did occur at the front, but all the cases of serious illness were at once transferred to the base hospital at the rear."

In my St. Louis address, Mr. President, the name of General Oku does not occur nor anything about his army. The statistics, the first that were published of the Japanese War, and which were submitted by General Oku, reached this country some time in November or December, and some two months after my address was written. I did, however, refer to the figures of General Oku in my testimony before the Committee on Military Affairs of the House of Representatives, on February 6th, 1905; and, on the 10th of last June, when I had the pleasure of meeting General Oku with his distinguished Surgeon General Mori, at his headquarters in the extreme north of Manchuria, I referred in a conversation with him to the figures which he had submitted last autumn. In that conversation he assured me—and was supported by General Mori—that not only were the figures correct, but that the next ones he would submit would be still more satisfactory.

Then Dr. Stokes goes on to discuss the question of beri-beri in the army, stating: "Of the total of 5,609 cases there were 5,070 cases of beri-beri, a disease with a mortality almost as high as typhoid fever * * * We see none of these things

in Dr. Seaman's reports. 'Beri-beri is almost unknown there,' is the statement made by Dr. Seaman before the Military Affairs Committee of the House."

Mr. President, I chance to have a copy of the testimony I submitted on the "Bill to Increase the Efficiency of the Medical Department of the United States Army." On page 6 of that report you will find the following statement:

When these statistics are compared with the frightful mortality in our own army during the Rebellion and the Spanish-American war, it will need no argument to prove the tremendous value of the methods pursued by this most modern nation in removing danger from preventable disease. It is stated that these statistics favor the Japanese because they are a more hardy race, not subject to the diseases common among our own people. To prove the fallacy of this assumption, it is only necessary to recall the experience of the Japanese ten years ago, when forty-five per cent. of her *navy* suffered from beri-beri. Today, with their modern ration, sanitation, and application of the truth, derived from the study of bacteriology, beri-beri is almost unknown there, and their losses from this cause in the present conflict are almost nil.

Is there anything in that quotation about beri-beri in the Army? I was speaking of the Navy and not the Army.

On August 2nd, at the Hotel Imperial in Tokio with Director General Saneyoshi sitting at my right, and Baron Takaki at my left (both of whom were my guests, and whose applications for membership in this Association I have with me here), these gentlemen assured me that among the 25,000 men of the Navy proper, there had not been a single death from beri-beri. There is a gentleman present now, whose word and statistics won't be questioned here, and who will bear this statement out. I did have something to say on beri-beri in my address delivered in St. Louis, and which you will find in the last paragraph on page 15:

Internal diseases are practically an insignificant factor in the Naval Hospitals, and up to July 20 not a single case of Kakki had developed. This excruciatingly painful disease, known in the literature of the Orient since the days of Confucius, was for centuries the dread of Oriental armies. Nor were the navies exempt, for as late as 1882, in a total force of 4,769 in the Japanese service, 1,929 suffered from Kakki, of whom 51 died. Elaborate investigation was instituted by Dr. Takaki then Medical Director of the Admiralty, resulting in the establishment of the fact that Kakki or beri-beri is a neurotic disorder resulting from a lack of nitrogenous nutrition—in

other words, of nerve starvation. The ration was remedied, to supply the lacking elements, with the result of practically eliminating it from the diseases treated in the hospitals of the Admiralty. From 1886 to 1893 not a single case developed. But the Army is less fortunate than the Navy. Its ration is not so rich in nitrogen. Economy is a factor that had to be studied most carefully in Japan and so no variation was made in the old ration of the soldier. This proved satisfactory in time of peace, when the soldier was not bound to it so rigidly as when in foreign service, and even in the first six months of the present conflict it served its purpose, but the long unbroken marches, when for weeks men were reduced to two meals a day—the terrible fighting in one instance—with no interruption for seven days—during three of which a large part of the Army had almost nothing to eat, and but little to drink, the long nervous tension and deficient nutrition began to tell, and when I left Newchwang late in August, Kakki began showing itself in the ranks. It is to be hoped that the reported capture by Japanese of sufficient provisions at Liaoyang to last the entire army three years is true—in which event Kakki will soon disappear. If not, the sooner the authorities substitute barley or lentils for a portion of the rice allowance, and a little pemmican as formerly used by our own army, biltung, used by the Boers, or pea sausage as used by the Germans—and by Kitchener in his famous campaign to Khartoum—the better it will be for their welfare. These foods will supply necessary deficiencies and banish an enemy that is second only to the foe they are trouncing so beautifully in the field.

Unfortunately, the capture of these supplies was not true. Mr. President, and beri-beri continued to increase in the army, until last winter a change was made in the ration of the soldier, whereby three parts out of ten of the allowance were made up of barley and seven of rice, with the result that Kakki rapidly decreased almost from the moment the men began to use it, and to-day it is very greatly reduced and no longer a serious danger. So much for that charge.

The *Detroit Free Press*, quoting Dr. Stokes, goes on to state: "I sincerely hope Major Seaman will take this opportunity to revise his statistics."

Mr. President, these statistics require no revision.

Dr. Stokes' quotation continues: "Dr. Seaman said that the medical officer in the Japanese army is omnipresent. That you will find him in situations where an American or British army surgeon has no place," etc., etc.

Mr. President, it is a pretty difficult thing to get direct evidence of what is going on with the first screen of scouts. They

are in advance of the army, and the Japanese Army is not in the habit of allowing visitors to go very far ahead of its screen. It chanced, however, that last summer, although I had been refused a pass by the Japanese government to go to the front, I had been allowed to visit their hospitals in Japan. To accomplish my further purpose, I went to Shanghai, Chefoo and thence to Newchwang, where I arrived when the town was being evacuated by the Russians, the advance guard of the Japanese Army arriving a little later. The first Japanese to appear in the town consisted of a small detachment who reconnoitred the place, and then went directly to the barracks formerly occupied by the Russians. Behind this barracks was a lake, almost in front of the American Consulate, where I was hospitably received by Mr. Miller, our Consul General. I chanced to see a representative of the Medical Department go to that lake, from which he filled a small bottle with water. He disappeared with it, and when two days later the Japanese marched into the town, they promptly posted a notice, in Japanese, on the barracks facing the lake, certifying that "This water may be used for cooking purposes, but must not be used for drinking until boiled."

I also refer to conversations between O. K. Davis and William Dinwiddie, two most trustworthy correspondents of many wars, who have assured me that my statements regarding the Japanese Military Service are substantially correct in every particular.

Dr. Stokes proceeds (quoting me): "But the courageous Dr. Tanaka whom I saw again in September with an infected finger and a temperature ranging above 100, but who was at that time performing his ten to twelve capital operations a day!"

Mr. President, I scarcely know how to reply to this criticism. Tanaka was and is the most overworked surgeon in the Japanese service. He has been on constant duty without a day's interruption since the opening of the Hiroshima hospital. He has performed over 1,200 operations with a record which is truly remarkable. I will not quote, because I do not have the figures with me, but I am sorry that his name should have been dragged into this wretched controversy, and I leave the scar on his index finger to answer his calumniators, and mine.

The newspaper account proceeds: "Surgeon Stokes got the floor once more, evidently desirous that there should be no misunderstanding, and explained that he has the highest regard for the efficiency of the Japanese surgical corps, but that he cannot allow the standing of the medical men of his own army to be called in question without answer."

Et tu, Brute! This is certainly the most unkindest cut of all and is unworthy the source from which it came. If there is any member of the Medical Department of the United States Army, or the English Army, present who believes I have intentionally reflected discredit upon that Department or its personnel in any respect, to that gentleman I wish to tender my most abject apology, and to you, Mr. President, I would tender this Badge of Membership in this Association. From the first time I came in direct contact with the realities of war in 1898 and realized the terrible unnecessary sacrifice of life from preventable diseases, I attributed the reason, not to the individual members of the medical profession, among whom in the army, I can name many of my dearest friends, but to the *system* under which they worked. I suppose you all know that the only Department in the Army which is not automatic, is the Medical Department. The officer of the line, of ordnance, of cavalry, of infantry, or even of the signal service can issue his orders and have them executed. Is it so with our profession? The medical man cannot do it. He can only submit a recommendation to a line officer, who may adopt it or not, at his fancy. Until that feature of our Medical Department is remedied, and the medical officer is made responsible directly, without any superior between himself and the Secretary of War or the President of the United States, that defect will remain, and there will be no remedy to the present condition. And this is the point I have been trying to make in the last seven years. It took me twice to the Philippines, to China in the Boxer War, and twice to Manchuria; and the evidence I have collected during these campaigns all goes to confirm that belief. If I am mistaken, I am open to conviction. But what I said in that address last October on this subject, I thought was sufficiently plain for him who runs to read.

In that address there occurs the following:

The three great lessons to be learned from the Japanese War are from the Medical, the Commissariat and Transport Departments. The Japanese authorities permitted our government to send five military attachés to accompany their army in the field. Was a Surgeon, or a Quartermaster, or a Commissary officer detailed? No. They represented the *life-saving* and *life-preserving* departments, and they were omitted. The killing department got the appointments, the cavalry, ordnance, infantry, etc., and today Japanese officers are laughing in their sleeves at our senseless failure to have representatives on what they consider their three vital points, whilst the only weak, almost burlesque feature of their army, its cavalry, is considered of sufficient importance to be worthy of special study. Certainly "it is to laugh." But what can be expected of a government that, after its terrible lessons of 1898-9 still insists—especially in the tropics—on subsisting its army on a ration so rich and elastic, (lovely term, that, elastic), so *elastic* that when in the emergency war, its elasticity is *tested* it bursts its bands, and is found to consist of pork and beans and fermenting canned rubbish, that in six weeks prostrates 50% of its 250,000 units with intestinal diseases, and sends, 3,000 to their last homes—to say nothing of the enormous number invalided, and the 75,000 pension claims? That, in its famous army reorganization fails utterly to recognize one of the most important of all the departments, namely, that of sanitation, as it is recognized by the Japanese today? That holds its great life-preserving department in such light esteem, that but one officer in the entire army can even reach the rank and emoluments of a brigadier-general? That on its general staff fails to have a single representative of this department—or, if any—only a young, inexperienced man of inferior rank, instead of the ablest and most experienced officer in or out of the service—whose rank should not be less than of a Major General, and whose opinions would carry weight in councils of war.

A few days after that address was read, two gentlemen were appointed to visit the scene of hostilities, to one of whom you have just listened, in his admirable paper on the Russian side of the war. The other has not yet returned.

My paper which follows is part of my answer to Dr. Stokes.

THE REAL TRIUMPH OF JAPAN, OR THE CONQUEST OF THE SILENT FOE.

THE success of Japan in the recent conflict with Russia is due pre-eminently, to three fundamental causes: first, thorough preparation and organization for war, such preparation as was never made before; second, to the simple, non-irritating and easily digested ration of the Japanese troops; and

third, to the brilliant part played by the members of the Medical Profession in the application of *practical sanitation*, and stamping out of preventable diseases in the army, thereby saving its units for the legitimate purposes of war—the smashing of the enemy in the field.

It must never be forgotten that in every great campaign an army faces two enemies; first, the armed forces of the opposing foe, with his various machines for human destruction that is met at intervals in open battle; and second, the hidden foe always found lurking in every camp, the grim spectre, ever present, that gathers its victims while the soldier slumbers in hospital, in barrack, or in bivouac,—the far greater and silent foe, disease.

Of these enemies, the history of warfare for three centuries has proven that in prolonged campaigns the first, or open enemy, kills twenty per cent of the total mortality in the conflict, while the second, or silent enemy, kills eighty per cent. In other words, out of every one hundred men who fall in war, twenty die from bullets or wounds, while eighty perish from disease, most of which is preventable. This dreadful and unnecessary sacrifice of life, especially in conflicts between the Anglo-Saxon races, is the most ghastly proposition of the age, and the Japanese have gone a long way toward conquering, or eliminating it.

Without minimizing for a moment the splendor of her victories on land or sea—Mukden, Port Arthur, Liaoyang, or with Togo in the Corean Straits—and two of these battles are among the bloodiest in history, I yet unhesitatingly assert that the greatest conquests of Japan have been in the humanities of war—in the stopping of this needless sacrifice of life by preventable disease; and, gentlemen, the medical men of the army did it.

Longmore's tables, which are accepted as the most reliable statistics of war, and which are based on the records of battles for the past 200 years, show that there has rarely been a conflict of any great duration, in which at least four men have not perished from disease for one from bullets. In the Russo-Turkish war, 80,000 died from disease and 20,000 from wounds. It is asserted on eminent French authority that in six months of the Crimean Campaign, the Allied Forces lost 50,000 from disease

and 2,000 from bullets. A gentleman who remembers that campaign, an ex-president of the New York Academy of Medicine, told me that he had seen whole regiments die away from disease, without ever seeing the firing line. In our war with Mexico, the proportion of losses was about three from disease to one from bullets, and in our great Civil War about the same proportion of figures was maintained. In round numbers, of the 500,000 fatalities on both sides in that conflict, nearly three-quarters resulted from disease. There are men living, some of them perhaps present, who may remember that nearly as many men perished from fevers and intestinal diseases in the trenches along the Chickahominy, as were afterwards slaughtered in the terrible battles that ended our great fratricidal conflict.

No lessons seem to have been learned from these frightful experiences, for later statistics show no improvement. In the French Campaign in Madagascar in 1894, 14,000 men were sent to the front, of whom twenty-nine were killed in action, and 7,000 perished from preventable disease. In the Boer War in South Africa, the English losses from disease were simply frightful, greater than even our Civil War record—but the crowning piece of imbecility was reserved for our late war with Spain, where, in 1898, fourteen were needlessly sacrificed to ignorance and incompetency, for every one who died on the firing line or from bullets. This, too, in a campaign the actual hostilities of which lasted only six weeks.

The Japanese themselves in their war with China, in 1894, lost about the same average as we did in our rebellion: nearly three from disease for one from bullets, and forty-five per cent of their army suffered from kakki, or beri-beri, rendering them non-effective for the firing line.

All of these statistics were studied with the minutest care and detail by the Japanese. Their authorities recognized that, in order to be victorious over a foe like Russia, this great silent enemy that slaughters eighty out of every hundred that fall, must be overcome. And the medical men of the army DID IT!

The actual figures of killed and wounded, and sick, in the

Japanese Army, from February 1904, to the end of April 1905, are as follows:

	<i>Number.</i>	<i>Per Cent.</i>
Killed on Field.....	43,892	7.32
Wounded.....	145,527	24.27
Died of wounds.....	9,054	1.51
Sick, including other wounds, accidents, etc., not on the firing line.....	162,556	27.11
Died of Sickness and Disease	7,435	1.24
Contagious Cases	10,563	1.93
Died of Contagious Diseases.....	4,557	.76
Total of dead, wounded and sick.....	383,584	64.14

Note these startling totals:

Killed and died from wounds.....	52,946
Died from all diseases.....	11,992

or more than four deaths from bullets for one from disease, as against the record of centuries of four from disease to one from bullets, or 800 per cent better than the average of history!

This represents the entire army in the field, and percentages represent the number of men out of each 100 dead, sick or wounded.

There were thirty-six men out of every 100 who went to war who were never wounded or sick a day during a year and a half's campaign. Only one and two-tenths per cent of the entire army died of sickness or disease. Only one and one-half per cent died of gunshot wounds, though twenty-four per cent were wounded.

There were 2,000 more men who died of wounds than from preventable diseases. Of a total mortality from *all causes*, of 64,938, there were 40,954 more from casualties than from disease.

This record is, I believe, unparalleled, and unapproached in the annals of war.

How was this marvelous result attained? Ten years ago, when Japan was robbed of the legitimate fruits of her victory over China by the concerted action of Russia, Germany and France, on the ground of their maintaining the integrity of Chinese territory, and immediately afterwards saw these grasping vultures deliberately appropriating the territory themselves, she recognized the magnitude of her own danger, and set about to pre-

pare for the inevitable struggle that was to determine whether she was to remain an independent nation or was to become a vassal of the aggressive Muscovite. Her statesmen reasoned in this way: They said, we are about to engage in a terrible war with an antagonist of great strength and prestige, with enormous resources and a supposedly invincible army. That is our first, or open enemy in the field. We are also to engage with another enemy, the grim spectre that kills eighty out of every hundred who fall in war—this is our second or hidden foe. Our mortality in the conflict may reach a million men, and it is a sacrifice we are willing to make to preserve our freedom and our institutions. If this terrible slaughter occurs, and the average of the wars of the last 200 years is maintained, two hundred thousand men will fall on the firing line from wounds, and 800,000 will die in hospitals from disease. For every man who dies there will be at least ten who will be ill, some of whom will be permanently invalided and incapacitated as fighting units. These men will require nursing and hospital care, necessitating enormous expense and impedimenta. We are willing to sacrifice the million men, but the element of disease with its terrible cost and impedimenta must be *eliminated*.

With this point always in view, she sent her students all over the world to study the army systems in other lands. With the knowledge thus garnered, she evolved a system of her own, based on the practices in vogue in Germany, but greatly modified and the motto of which might have been "Prevention, not treatment." She organized her Medical Department on broad generous lines and gave its representatives the rank and power their great responsibilities merit, recognizing that they had to deal with a foe that kills eighty per cent of the total mortality. She even had the temerity (strange as it may seem to an English or American army official) to grade her medical men as high as the officers of the line, who combat the enemy that kills only twenty per cent, and to accord them equal authority—except, of course, in the emergency of battle, when all authority devolves, as it should, on the officers of the line. In her home land she organized the most splendid system of hospitals that has ever been devised for the

treatment of sick and wounded, and with her army at the front she put into execution the most elaborate and effective system of sanitation that has ever been practiced in war. Upon the declaration of war she was prepared to house, scientifically treat and tenderly care for 25,000 sick and wounded in Japan alone. Twelve sets of main hospitals, each with from one to five attached branch hospitals, were scattered throughout the empire in the chief towns of the twelve military districts, into which the country is divided. In other words, the peace footing organization of the Hospital Service provided for one main hospital and necessary branches at the headquarters of each Army Division.

The original 25,000 odd beds were rapidly increased in number as the campaign progressed, by the erection of substantial, though exceedingly plain pine buildings running parallel and so constructed that each was a unit, housing 100 patients, but connected in series by covered walks and runways.

Great elasticity was gained by this simple form of architecture, for wards could be tacked on indefinitely within the limitations of the property area. Each ward was practically isolated, yet for administrative purposes the whole was as one building. Surgical, general medical, contagious and infectious ward series, were wholly isolated from one another by erecting three completely separated series on the same plot of land, each series containing its calculated proportion of unit wards for the specific class of cases for which it was designed.

One and a half years after the commencement of the war, or on the 6th of July, 1905, the twelve great military home hospitals possessed a normal capacity of 58,263 available beds. On this same day, however, only one-half of them were in use, or, to be exact, there were 28,561 patients in hospital. Unofficially, but by good authority, I have been informed that the increase in the number of hospitals and beds was made from time to time upon figures deduced from other wars, and the provisions made were thought at first to represent what would be a true relationship of the sick and wounded to the entire force in the field.

The apparent hospital over-preparedness suggests that the Japanese themselves failed to realize what marked successes would

attend the enforcement of their new Code of Military Hygiene and Sanitation, as applied for the first time in the field.

That it was not really over-preparedness, was demonstrated after the battle of Mukden, when the total extraordinary hospital capacity of some 80,000 beds, secured by crowding, was taxed almost to its limits by the shattered phalanxes which poured in by thousands from every transport. It is hardly likely that the Military Authorities could have foreseen that the Japanese-Russian War would develop the greatest recorded battles of the world, with unparalleled movements of fighting soldiers, and a sacrifice of men by wounds so tremendous that even the spectator on the battlefield fortunately fails to grasp the overwhelming horror.

Whether the Medical Department prepared this immense hospital system for sick or wounded, is of little importance; the fact, however, being that when the ghastly cortege from Mukden did arrive in Japan in April, there was hospital room for every disabled man of the thousands and thousands, and instant medical attendance and care and nursing ready and waiting.

Time does not permit of a detailed description of even one branch of one of these admirably managed military hospitals, but to illustrate the careful detail which is exercised in each department, I may say that they are directed by trained, painstaking specialists, and that the most advanced ideas in medicine and surgery are practiced in them.

To illustrate one feature, attention might be called to scientific massage, which has been developed to a degree in Japanese military treatment never before attempted. Massage is a very old institution in Japan, and with the recent advancement made in the precise knowledge of the body, the skilled masseur has been able to develop and adopt a system of real muscle and nerve stimulation of the utmost importance in military surgery.

A complete text book has been written by the military officer in charge on this subject of massage, largely on the basis of new knowledge acquired in treating thousands of cases during the last eighteen months in this hospital. About twenty-five patients are treated at a time by skilled masseuses under the eye of several technically trained experts, who examine the cases and ex-

plain to the kneaders the result which it is desired to attain. The work is done in drill form, i. e., the masseuse at the word of command begins operations, works for five minutes, rests two, then continues five more. Ten minutes is usually the limit for a single treatment, though the same patient may come on for several treatments per day.

The large class of surgical gymnastics at this hospital is exceedingly interesting in that the drills are mostly in the open and make a spectacular display. Every man with crippled joints, wasted or contracted muscles, or other physical deformities that can be aided by a specialized exercise, is enrolled as a member of the class. Calisthenics of various kinds are indulged in by the men under orders, but the class instead of making all the same movements will be making those of particular advantage in each case. Parallel bars, horizontal bars, swinging rings, stairsteps in series of varying heights, cranks, horizontal, vertical and twisting handles, obstacle bars, hurdles and several other devices are arranged in a pretty little grove, and here the crippled go through the motions by which it is hoped to bring them back to normal physical standards.

The pharmaceutical side of these military hospitals is an auxiliary machine working in perfect harmony with the whole. Like the field service, it is indisputably responsible for all the medical and surgical supplies, and issues them upon requisition of the doctors and surgeons. Besides this, the Department is responsible for all sterilized milk, washing of bandages and rerolling, disinfection of bedding, and the making of chemical tests of urine.

Every hospital throughout Japan, and every base and field hospital in Manchuria has its bacteriological laboratory.

Too much cannot be said in enthusiastic commendation of this side of the service. Undoubtedly the painstaking researches made day by day, even hour by hour, by the corps of trained experts with this instrument, that the dread phantom of disease might be intercepted, has been the means of saving thousands of lives by forestalling possible epidemics, and saving individual life by prompt determination of the trouble. No man suffers from temperature, but whose blood goes under the microscope. Mala-

ria is malaria and typhoid is typhoid in the Japanese Army, and not "Algerian Fever," caused by inappropriate and irritating rations, because every case there is differentiated under the microscope and otherwise. Diseases are not guessed at, as they were in Cuba, the Philippines and South Africa, where often for a full week the physicians attempted to diagnose cases by sleight of hand and trick of eye. One wishes to dodge the deluge of shame which shocks us at the remembrance that we, a nation proud of our civilization and advanced scientific methods, killed thousands of our men through defective organization and brutal, if not criminal incompetency of those in executive positions, while our friends the Japanese, just awakening from so-called barbarism, an oriental, almond-eyed race, which we have hitherto patronized, has shown us that with proper forethought, system and skill, men need not, in appalling numbers, rot and die horribly in the trenches from disease.

Not content with fine bacteriological laboratories in every hospital; one often finds several of the doctors and surgeons carrying on private researches in their own special wards with microscopes and appliances which are their own private property, preparing slides, raising cultures and working ever, to find the new elusive bacillus whose discovery is to bring them special recognition and fame. When one considers the meagerness of the salaries which these Japanese scientists receive, and the further fact that most of them are poor men, it is to realize that the sacrificing perseverance exhibited, and the enthusiastic love of scientific work shown, will take these people a long journey farther on the road of unsummed knowledge.

The limits of this paper do not admit of more than the merest reference to the splendid system of sanitation followed in the field—a specially dangerous field too, because the water supplies in the territory where the campaign was conducted, had been left infected with the deadly germs of typhoid, dysentery and cholera by the retreating Russians; nor of the water tests and universal use of boiled water for drinking; the physical training of the unit from barrack to battlefield; and the care exercised over his baths, his sleep and his rations. Suffice it to say that during the

campaign extending over a year and a half, with from 300,000 to 600,000 soldiers undergoing the severest hardships and privations of active service, there are in the Japanese army thirty-six men out of every 100, who have never reported at sick call; thirty-six men who never saw the inside of a hospital or were sick in quarters, a record absolutely unparalleled. In every other recorded campaign it is found that usually once during a period of every three to five months, each soldier in his organization, or an average of that number, has reported to the military medical officer for treatment.

I have just returned from the headquarters of the Second Imperial Army on the Mongolian frontier, commanded by General Oku, where I found the busiest instrument in the campaign was not the Murata rifle, but the monocular microscope.

My opportunities for observation were unexcelled, as the Imperial Government in its extreme courtesy accorded me all the privileges of a foreign military attaché; and weeks were spent in the military hospitals of Japan prior, and subsequent to my visit to the front.

The war has taught many lessons and destroyed many ideals in matters military as in matters surgical, where the heretofore accepted idea of the duties of the military surgeon has been shown to be erroneous, where asepsis and antisepsis have relegated the use of the scalpel to comparative obscurity, and demonstrated most conclusively that preservation of the army by prevention of disease is the surgeon's duty, first, last and nearly all the time. In surgical technique, or in the after-treatment of the wounded and sick, the Japanese have taught the foreigner comparatively little, but in the field of sanitary science and dietetics they have demonstrated, what has never been done before, that preventable diseases *are* preventable and that the grim spectre, which lingers in every barrack, tent and quarter, and which in all great wars of history, has been responsible for nearly eighty out of every one hundred of the recorded deaths, can be controlled. They have demonstrated that the great incubus of an army in the field, the presence of crowded hospitals and the large and expensive force necessary to equip and conduct them,

can, to a large extent, be eliminated. They have preserved their armies for the legitimate purposes for which armies are enlisted; the killing or conquering of an open enemy in the field, instead of having four-fifths of its mortality victims to the silent foe.

It is against this dreadful scourge, this needless sacrifice, that the Japanese have made their hardest fight and won their most signal victories—victories that will redound *more* to their credit, than the expulsion of the Muscovite aggressor.

In the matter of discipline, Captain Tanake, aide-de-camp of Marshal Oyama, told me at Mukden, there had been but twelve courtmartials in the Manchurian Army, the majority of which were for cruelties to Chinamen. The number of suicides during the war was eighty six. The majority were among the men who were refused permission to accompany the colors to Manchuria, on account of some physical defect, and the remainder, because they preferred death to capture by the enemy. There has been but one desertion—a fanatical pharmacist, who was caught by the screen of the Japanese near Mukden, disguised as a Chinese Coolie, and concealing on his person a quantity of poison. He imaged himself the deliverer of Japan, and attempted to gain admission to the presence of Kuropatkin as a servant, for the purpose of poisoning him, as he regarded Kuropatkin as the bitterest enemy of his country. He was courtmartialed and severely punished. Was there ever an army with such a record?

A prominent officer of the United States Regular Army, who had never been through Japan or in Manchuria, said to me recently, "The medical service of the Japanese is inferior to that of the Americans, that no doctor had any business at the front, that, if one of them appeared on the firing line or near it, when he was in command, he would kick him back to his place in the hospital where he should remain looking after the sick and the wounded and attending to the business that he was paid for; and if he refused to go he would put him under arrest and have him courtmartialed; that all these examinations of water and wells and streams were humbug and tomfoolery, and that the use of boiled water on marches or in camp was impractical. In times of war, he said, the place for a doctor was behind the army,

taking care of the sick and wounded, but never in the front. If a doctor objected to a situation selected by him for an encampment, on the ground of its unsanitary condition or bad water supply, he would tell the doctor to go to hell." This man, too, had been detailed as an instructor in one of our large universities. I would not quote his utterances, were it not for the fact that he reflects the sentiment of a class of officers, whose knowledge of sanitation scarcely rivals that of a mud turtle; and that he illustrates the type of a man most dangerous to the safety of the army and to the nation.

A despatch received in London on September 21st, from the Tokio Correspondent of the London *Standard*, giving some of the statistics of the war to that date, reports: "Killed 46,180, died of wounds 10,970, died from sickness 15,300. This percentage of death to sickness was less than one-fourth of the total dead, which is a record not paralleled in the annals of war."

When contemplating these marvelous figures, with what a ghastly and melancholy smile the hero of Manila must recall his action in censoring the cablegram of the Chief Surgeon who had requested fifty additional medical officers and 200 more nurses when the hospital wards were overcrowded, because such a dispatch would prove the falsity of his claim that he had "the situation well in hand." Months afterwards the surgeons and nurses were provided but not until the horrible condition was intensified, and taps had sounded the requiem for many a poor boy who had joined the great majority.

Perhaps the same delight may solace the contemplative Commander in the Cuban Campaign, when he recalls his famous order at Tampa, directing the unloading of a ship filled with medical and hospital supplies for Santiago, and the substitution of a load of mules instead.

Or of another Major General during that war, who on being waited upon by certain medical officers, one of whom is here today, with a protest against the use of certain water at Chickamauga, said in response to their complaint: "When I want your advice, I will send for you; until I do, you can attend to your own business."

Or even of the then Secretary of War, who, when inspecting the camps at Montauk Point with the President of the United States, said on looking at a glass of water furnished the troops at this infected camp, and which certain medical men had pronounced to contain germs of disease: "Why, it looks all right to me."

Gentlemen, is our great profession,— a profession that in one of the bloodiest wars of history has demonstrated its ability to reduce the mortality of deaths from disease 800 per cent—is it to remain subservient to the dictates of this variety of judgment, or is the Medical Department of the army to be reorganized upon rational lines and empowered to enforce its mandates?

How sanitary matters were regarded by the authorities in Japan, may be judged from the following. On the 10th day of May last Count Katsura, Premier of the Empire, said to me: "We are in constant fear of the approaching summer, lest these most dreaded enemies, cholera, dysentery and typhoid fever, left by the retreating foe, excite epidemics in our ranks, and it is against them that our most strenuous efforts are now being directed. If our Army could campaign in a new country, undefiled by former occupants, its danger would be greatly reduced."

Until the line and staff officer of the American Army is taught the necessity of sanitation, and the medical officer is given rank and authority to enforce it, our Medical Department must remain a humiliating failure. Its continuance under present conditions is no less than an evidence of national imbecility.

The wife of an American officer, whose life had been needlessly sacrificed through preventable disease in one of our island possessions, returning from the sad scene, recently said to me: "Those who love their country are willing to give their dearest and best for their country's good, but there is little glory and much suffering for the soldier who dies from disease in a foreign clime, wasting his life instead of losing it in the defense of his country's honor. We, the mothers, must teach our children the lessons of loyalty; must imbue the boy of today with the patriotism that will make him the soldier of tomorrow. We may dwell with loving pride on the glory of death on the firing line, and

inculcate in him the lessons of heroism which characterized his father's life and made his death a triumph. But what can we say to the son of the man who has died from disease due to the lack of care by the country for which he was willing to sacrifice his family's interests and happiness, and his own life? Loyalty has its birth in love, and its death in hate. This is not the first nor the last war America will have to fight, and it behooves our law-makers to look well to the care of the soldier of today so as to count on the sons for tomorrow, for America's future depends on the lessons her sons are now learning."

DISCUSSION.

Surgeon CHARLES F. STOKES, U.S.N.—As I am to read a paper before the American Roentgen Ray Society, at the Johns Hopkins Hospital, tomorrow afternoon, I have to ask your permission to reply at this time to what was said by Dr. Seaman this morning in order that I may keep my appointment in Baltimore.

No one appreciates the value of the paper read by Major Seaman today more than I. It is intended to do good and without doubt will accomplish much. As to his preliminary remarks I can only say that while I lay claims to no such oratorical talent as was displayed by the Major this morning still I am delighted to be here and have this opportunity to reply to him and again point out to him wherein he is in error.

When I saw Major Seaman after his return from the University of Michigan, Tuesday, I went over everything that I had said in the afternoon and told him *then* that I was sorry that he had not kept his promise to be present. He said he would reply to me from the platform Thursday. I asked him to let the discussion be free from personalities and I want to congratulate him in this respect for he has *almost* succeeded.

He has stated that I attacked him during his absence Tuesday while as a matter of fact I repeatedly asked him to be present to hear what I had to say. I saw him talking with Dr. Braisted about the time I began, and was amazed later when I had finished to find he had left the room. I met Dr. Seaman in New York on my way here and gave him an inkling of what I was going to say, inviting him to be present, and his reply was, "If you fellows will let me alone I'll make you all brigadier generals." I assured him that I had no aspirations in that direction.

In discussing his statistics this morning Dr. Seaman did not read from the report of the hearing before the House Committee on Military Affairs from which I had quoted him, but very cleverly substituted the paper read by him before this Association at St. Louis, giving the impression that he had been intentionally misquoted, while the report of the House Committee lay within his reach on a table at his side to be used when it suited his purpose. I decline to comment upon this.

To say that the proportion of deaths from bullets to deaths from disease in the first six weeks of the Spanish-American war was one to fourteen is erroneous and misleading. The exposure to bullets in Cuba was comparatively small while the exposure to disease through mosquitoes alone was extremely large; even under these conditions the Report of the Secretary of War shows the proportion to be—deaths from bullets one, from disease one and one-half. If Dr. Seaman intended to include the Army at home in getting up his statistics (and from them drawing his conclusions) where the exposure to bullets was nil, and the exposure to disease large, he might as well have included the cities of Philadelphia and New York. Such statistics and proportions are misleading.

In Manchuria we have seen a series of clashes with armies actively on the move, where sources of infection seem to have been inconspicuous for Colonel Harvard has told us that less disability from disease existed in the Russian Army than in the Japanese, and there is only one conclusion to draw from this: the common disease producing agencies of armies were in abeyance in Manchuria. In the Philippines the exposure to disease was enormous while the exposure to bullets in the guerilla warfare carried on there was small, and Harrington reports the proportional mortalities as one from bullets to five from disease.

My plea gentlemen is simply to correct wrong impressions. We know that the Japanese disabilities from disease were large. Nozi's Army before Port Arthur is said to have had 25,000 cases of beriberi in it, making an enormous percentage of sick.

The preliminary statistics reported to have been authenticated by Japan give the number of deaths from disease as something over 15,000. Dr. Seaman reports a fraction of one per cent of deaths. Had there been one per cent of deaths from disease then the Japanese must have had one million five hundred thousand men in the field.

For Major Seaman to give the impression that it is possible for the medical officer, microscope and chemicals in hand, rushing about with the "first screen of scouts," to sample water and to pronounce it good or bad as the case might be, is to insult the intelligence of this scientific body. Those of us who have worked in the field of bacteriology know that it takes many hours for the bacillus coli communis, which we usually seek, to produce gas in glucose beef-tea, and that the microscope is practically useless with the "first screen of scouts." It looks as though the Major had not considered the scope and limitations of bacteriology in this situation. In camps of permanence and in many other situations, systematic bacterial examinations of the water supply are of inestimable value but these are not possible with the "first screen of scouts."

The point that I wanted to bring out in referring to the medical officer who was "doing his ten to twelve capital operations a day with an elevated temperature and an infected finger" was that the Doctor did not seem to re-

alize that he was making Tanaka violate the first principles of aseptic surgery. We have since learned through Dr. McGee that there was a mistake. Dr. Tanaka *directed* the surgical operations but did not himself operate while he was suffering from an infected finger. Of course that finger bears the scar to which the Major referred this morning when he repeated the statement. To have worn gloves and to have operated with an infected finger upon ten to twelve capital cases a day would have meant an enormous exposure of wounds to serious infection, particularly if accidental puncture had occurred.

I must repeat what I have said about these erroneous statements. Dr. Seaman whose aims seem perfectly proper, can do the cause of military surgery and military sanitation in this country no greater service than that of correcting his statistics and removing the wrong impressions some of his remarks have made. It is not necessary to mislead the public in order to gain our ends. Wherever you may go you hear the remark that there must be inefficiency and rottenness in the medical corps of the army and navy. This impression should be removed by the father of it.

Major W. C. BORDEN, U.S.A.—I have listened to the papers on the Russo-Japanese War, and the discussions thereon, with great interest. I wish to compliment Major Seaman on his particularly excellent paper, and the conclusions he therein draws.

In these papers and the discussions thereon certain differences have been expressed. To me, these differences seem largely immaterial.

We have to acknowledge that in our war with Spain, we had a very great number of cases of preventable disease. We have to admit also that in the Japanese and Russian War these diseases have to a large degree not occurred. It seems plain that from observation and discussion of the conditions in these wars, that we have if possible to arrive at the lesson of prevention. I believe that Major Seaman is doing the best kind of work in educating our people as to the lesson to be learned. I sincerely wish that every member of the Congress of the United States could have been present here to listen to his paper. I believe if, in any way, such material as he has presented can be brought to the attention of our law makers, it may do the country inestimable good.

We all acknowledge that the Medical Department of the United States army is not in a perfect condition. We acknowledge further that if we were to enter into war at the present time, we would undoubtedly fail in many of the duties which would necessarily fall upon us. The fault is not ours. It is the fault of the system under which we work; and this Major Seaman has repeatedly emphasized; equally, the President of the United States has taken the same position. There is now before Congress a bill for reorganizing the Medical Department of the Army. President Roosevelt in forwarding and recommending this bill said:

"The Secretary of War has called to my attention the fact that the act approved February 2, 1901, * * * failed to meet the needs of one staff

department in which all of our people are peculiarly interested, and of which they have a right to demand a high degree of excellence. I refer to the Medical Department. * * * I am satisfied that the Medical Corps is much too small for the needs of the present Army, and therefore very much too small for its successful expansion in time of war to meet the demands of an enlarged Army and in addition to furnish the volunteer service a certain number of officers trained in medical administration. A bill, which, in the opinion of the Secretary of War, of the late Secretary of War, and of the General Staff of the Army, supplies these deficiencies was introduced at the last session of Congress, and is now before you. * * * I earnestly recommend its passage by the present Congress. *If the Medical Department is left as it is, no amount of wisdom or efficiency in its administration would prevent a complete breakdown in the event of a serious war.*"*

That public discussion of such facts as Major Seaman has brought to our attention, is productive of good is shown by an incident to which he has referred: i. e., the fact that for some time after the beginning of the war in the East we had no medical observers there. The Surgeon General of the Army (General O'Reilly) made a request to send medical officers in order that we might learn the methods of the Medical Departments of the armies there engaged. This recommendation was not acted upon, but when Major Seaman returned from his first visit to the War in the East and made public the low mortality of the Japanese Army, President Roosevelt himself made inquiry as to whether or not any medical officers of our Army had been sent as observers with the Russian and Japanese forces. Finding that none had been ordered, he directed that a suitable number be sent. In this way Major Seaman's utterances in the public press were directly beneficial to the Medical Department.

I think that in this country we are in an extremely critical position so far as the organization of the Medical Department of the army is concerned. It cannot be too greatly impressed upon the public, and those in authority, how critical this position is. It seems to me that if every member of this Association was as earnest and energetic as Major Seaman, we might obtain legislation which would give us a better Corps and organization than we now have. Major Seaman has stated again and again that we need reorganization: a better medical service certain of recognition from the line of the Army, so that our advice might be followed. Similar utterances have been made by almost every medical military expert.

A word as to the statistics presented by Colonel Havard and Major Seaman.

Colonel Havard reports relatively fewer cases of death from disease to those who died from bullets in the Russian Army than does Major Seaman for the Japanese Army. In other words, comparing the ratio of wounded to sick, it would appear that the Russian Army was healthier than the Japanese Army. As a matter of fact this may or may not have been the case

*Italics the Speaker's.

Comparison of the number of sick with the number of wounded in any Army is of value only to the medical statistician, and is by no means a definite statement of the sanitary or health conditions of that army.

The number of sick and the deaths from disease have no direct proportion to the wounded and to those killed in action. The number wounded or killed in action depends upon the size of the forces engaged, the length of the engagements and their severity. The number of sick and those who die of disease depends upon entirely different factors, viz.: total number of troops in the field and the length of time that they are in active service. Therefore, when Major Seaman compares the number killed with those who died of disease, in our war with Spain, it means but little. We had a small force actively engaged with the enemy but a short time. We had a large force for a much longer time exposed to the conditions of camp life. The proportion of the killed and wounded to those sick and who died of disease might have been reversed and our army still have been unhealthy.

Equally, it does not follow because the Russians had relatively fewer sick to the wounded than did the Japanese that their army was the healthier. Undoubtedly the Russian loss in killed and wounded in the field was much higher than the Japanese, and this would relatively lower their number of sick, but would not mean that their army was healthier.

Major Seaman says that the Japanese have excelled in preventing disease in their army. If this is so it behooves us to find out why it is so.

We should willingly admit that our past results have not been ideal: if from the study of Japanese or other methods, we can better ourselves, we should certainly do so.

I regret that minor differences of opinion have arisen. These differences in no way affect the main issue, however. We had a great loss in the Spanish-American War from preventable disease; the Japanese have not suffered such loss. The great questions are, are we to learn the lesson presented to us, and can we impress it upon our legislators so that they will give us a better organization and system. In this way only can we arrive at that prevention of disease which will increase the efficiency of the Army, prevent individual suffering and death, and lighten the financial burden of the country by saving the cost of maintenance to the sick in war and their resulting pensions in peace.

General JEFFERSON D. GRIFFITH, N.G.Mo.—Surgeon Stokes seems to include the expedition to Santiago as the only part of the war. We were fighting at Chickamauga Park. The five hundred and some odd men we lost in Chickamauga ought to be included in those statistics. The number of sick of preventable diseases in Chickamauga should be included. We were continually increasing typhoid, and our hospitals were overloaded. They should be counted in. At Lexington we had a hospital with 712 beds and we lost a lot. At Montauk there was quite a number of sick. I don't see how you can leave those out and those at Camp Alger. We cannot hold

the medical department of the U. S. Army culpable for the immense amount of preventable diseases that happened during the Spanish War. The Surgeon General's hands were tied. You could not get what you wanted. They could not approve or disapprove our requisitions. I don't think the medical or surgical profession should be blamed, but put the blame beyond it. We want a different organization with high enough rank to be reportable to only the Commander-in-Chief of the army and navy. When Surgeon Stokes is at sea, the commander of the vessel is his only superior.

Major CHARLES T. NEWKIRK, Mich.N.G.—I had not expected to make any remarks before this august body on account of being a young member, but I cannot allow the name of my friend General Alger, to be assailed and remain silent. The distinguished gentleman who has just taken his seat is somewhat delicate about attacks being made on him behind his back if newspaper reports are true, but he is not so particular about attacking others and as we are guests of the people of Detroit and General Alger if he had not been ill planned to give this Association a fine reception, the attack is in my opinion ill advised. The getting together of an army of 300,000 men in a couple of months was no small task and it is possible that some mistakes were made, but I do not believe that any other nation in the world could have done better. In less than two months we drove Spanish sovereignty from the Western Hemisphere and liberated 14,000,000 of people and added an empire to this country. We also did something in the line of sanitation,—we annihilated yellow fever from Cuba, cleaned up her cities and made it possible for civilized people to live there. The sanitary conditions in Cuba were very bad. It is probable that the Almighty made the climate of Cuba but I think the Devil had a hand in creating the insects and vermin.

The combined armies and navies of the world with Admiral Togo at their head and the distinguished representative of Japan and Major Seamen as sanitary officers could not have changed these conditions. I yield to no man in my admiration of the Japanese surgeons, but I claim at the same time that the American surgeon deserves some consideration. The Jap soldier is very obedient, while the American is the most insubordinate cuss on earth; he will eat what he likes no matter what orders he may receive from his officers.

The army in Cuba was composed of the very best class of men. We had such distinguished surgeons as Havard, La Garde, and Gorgas. Out of 1,560 wounded we only had fourteen deaths. If the Japanese can show a record like that I should like to see it, I have not the statistics at hand but the deaths from yellow fever were few; we had all the necessary supplies, wine, and delicacies; no soldier suffered for medicine or food and I am sure that General Alger would have sacrificed his fortune rather than have had the army suffer. After his retirement from the Cabinet in appreciation of his good work he was chosen unanimously to represent this state in the senate.

Major CARLETON E. STARRETT, I.N.G.—It seems to me that we are overshooting the mark. We are apt to talk too much about the medical department of the army being reorganized. We arrived May 13th at Chickamauga. Before the first of June, I have personal knowledge, that the camp at Chickamauga was condemned by the medical department. It was decidedly an unsanitary camp. There cannot be found a worse situation than when you dig down two feet and get to the hard pan. No attention was paid to this report. In Porto Rico I saw the commanding officer place a command of healthy volunteers in a camp that had been condemned by the medical officers. It was situated at the meeting of three valleys. The regiment lay in a malarial maelstrom and was not moved until half the regiment was disabled. The women of the neighborhood washed their linen in a stream that ran through the camp, and the medical officers asked for a guard to keep the women away, but it was never furnished. We should not go on record as saying that the medical department requires reorganization. The fact is that the staff and line need to be brought to the standard the medical officer has long since attained. We should lay the blame where it belongs. The medical department will not break down in another war as one of the gentlemen has predicted.

Major GEORGE H. HALBERSTADT, N.G.Pa. The reason that typhoid was treated so extensively in Pennsylvania, was because the Surgeon General of Pennsylvania sent special trains south and brought them to Pennsylvania to be treated. We treated them, and discharged them later well. The regiment that had the largest number of deaths were sent from Camp Black. It was certainly not in the Pennsylvania camps that the typhoid originated. It sprang up in the New York camps.

Lieutenant Colonel N. S. JARVIS, N.G.N.Y.—I visited the camps myself. I am well aware that Pennsylvania has very efficient medical officers and no invidious comparisons were intended. I was in a hospital train that took fifty more or less to Philadelphia. New York contributed a large quota herself, as did other states. I therefore do not consider Pennsylvania responsible for all these cases of typhoid.

Major SIMON P. KRAMER, U.S.V.—In the long run it will be found that preventable diseases will not be prevented by polemics, but, by a careful and conscientious scientific inquiry into their causes and methods of propagation.

Just at present the medical profession is suffering from a wave of organization fever. We preach that all the ills that threaten mankind will be prevented by a proper organization of the medical profession, and its proper recognition by the laymen.

I shall be regarded, probably by many of my friends as heretical no doubt, when I mildly suggest that I believe that the cause for our failure to prevent typhoid fever during the Spanish War may be found in our lack of definite knowledge concerning the method of spreading.

Let us look for a moment at the history of this subject, for the purpose of drawing a lesson therefrom.

Previous to 1898 the profession was practically united in the view, that the principal channel by which typhoid fever was spread was through the medium of the water supply. We had nothing else.

In 1898 we took the Seventh Army Corps to Jacksonville, Fla., we extended the water-mains of the town (supplying artesian water to the camp), so that every company had hydrant service and the only water consumed was the same as that which was consumed by the 25,000 inhabitants of Jacksonville, water positively free from contamination.

The city itself was practically free from typhoid fever, the Seventh Army Corps had a very large percentage of morbidity from that disease. It was then that we became convinced that typhoid fever was not necessarily a water-borne disease, and it was then, that the fly theory became prominent as a substitute.

Now, let us look at the very interesting report that we have heard from the chief surgeon of Admiral Togo's fleet presented to us by our distinguished colleague, Admiral Suzuki.

We have here a command of about 25,000 men, consuming sterile, distilled water, with a sewage disposal that is ideal in that it goes into the sea as soon as voided. A force protected by the exigencies of war from outside contamination, and yet the fleet had a morbidity from typhoid of nearly one per cent. A morbidity, such as this, had it occurred in the city of Detroit, would have yielded about 3,500 cases, a condition which would certainly have been called an alarming epidemic.

Does not all this go to show that there is something lacking in our knowledge of the disease? That our information lacks that accuracy of foundation, that military authorities are justified in demanding before taking absolute measures based on such information?

If the Japanese Army in Manchuria had no typhoid epidemic, and if the Russian Army had none, and it appears from the report of Colonel Harvard that such is the case, why they were fortunate.

But is it fair to assume that the absence of typhoid in the Japanese Army was due to the excellence of their sanitary organization, that the same absence in the Russian Army was due to the poor sanitary organization and that the presence of typhoid in the American Army during the Spanish War is to be laid entirely at the door of the line officer who did not heed the suggestions of the Medical Corps? Is there not a little lack of logic in all this?

Would it not be wiser for us to take the position that our knowledge on the subject is as yet inexact; that if the armies in Manchuria had no typhoid it behooves us by a patient and scientific inquiry to determine why not; not to indulge in polemics at the expense of the reputation of our own army?

We meet with no opposition in our efforts to control variola or diphtheria. Here we have accurate knowledge: so that all men can see, there is no

question. Our recommendations are obeyed to the letter. It is this kind of knowledge that appeals to all men.

Something has also been said in the way of invidious comparison, regarding the care of the sick in the Japanese and American armies. Let us look for a moment at this side of the subject.

During the Spanish War we had a mortality from typhoid of about seven per cent. Where will you find anything better than this? Certainly not in the Japanese Army, and hardly in the best civil hospital of any nation.

Now if a low mortality from typhoid means anything at all, it means a high degree of efficiency in the care of the sick. That is what keeps the mortality down, that and nothing else.

Much has been said in the way of criticism of the Army Medical administration, much of it is undeserved, most of it, I believe.

Major Seaman, as an instance of our lack of efficient administration, cites the fact that when he went to Porto Rico he begged for a microscope and could not get it. I want to say that when I went to Cuba in the service of the army I did not beg for a microscope. I took one with me.

I have referred to this only for the reason that I desire to emphasize the fact that no amount of administrative care will remedy a lack of individual effort.

Colonel W. J. R. RAINSFORD, R.A.M.C.—I would like to impress upon everyone that this Association should be the means of educating the public, and when you have done that, you will get what you are looking for. In our experience during the South African war, a man came out there whom we considered a busybody. His name was Ashmead Bartlett. He made an exaggerated report. The result was that he brought our service to the notice of the public attention. We never would have gotten anything but for him, though we hated his name at the time. It is just such a paper as Major Seaman has read that will arouse the public. There are two or three little things that have been said today, one of which I absolutely deny, and that is that the nursing of the sick has anything to do with the mortality. The deaths depend on the intensity of the poison. In epidemics the mortality at times is small with the same nursing. On the march to Pekin we had not a single case of enteric fever, and that may throw some light on the Russian and Japanese mortality statistics. The soil over there does not seem to favor the growth of the germ outside the body. Another point and that is what a gentleman here has said,—it is the line and not the medical department that requires reorganization. The medical department wants the power. Educate public opinion, and you will get what you want.

Major THOMAS C. CLARK, Minn.N.G.—It remains for one of our foreign colleagues to come here and offer us a suggestion as to how to prevent insufficient military medical power, by calling the public's attention to it and in that way obtaining the immense benefit to be derived from Major Seaman's paper. We hope the recommendation of a body like this would have

influence with Congress, but we know it won't have half the weight on Congress that the newspaper does. The thing which will influence votes is what will produce the effect. If 300,000 men were put in the field tomorrow, we would have a repetition of what we had in 1898. We have the most competent medical department in the world. Through the failure of Congress to provide the necessary equipment and facilities for the proper sanitation of her army, their efforts were a failure. Let us stop our quarreling about statistics and get legislation which will give the medical department the power; and that should also include the line officer who disregards the recommendation of his medical officer, and who should be courtmartialed or proven guilty of manslaughter, if he disregards the recommendations of his medical officer. The line officer needs instruction. I want to thank Colonel Rainsford for producing the only suggestion from which we can expect results.

Major SEAMAN.—I am glad the trend of this discussion has lost that of personalities and has assumed one of principle. In my paper last year I made this statement: "And yet, should occasion arise for the gathering of another army of 250,000 next summer, what evidence is submitted to prove that the lamentable scenes of 1898 with all their nauseating details would not be repeated? Where, as in Porto Rico, Tampa, and Chattanooga no fighting was done,—but where more sick and invalided were gathered at one time than would overload any dozen transports and hospital ships with men who never smelled powder, or saw a hardship of real war, and who, had they been properly subsisted on the principle of the Japanese today, would have returned to their homes and vocations healthy and happy as after a summer's outing? I ask what tangible evidence is submitted to show that history would not repeat itself, and that such an army gathered hastily, would not again be brought almost to its knees, through the same ignorance and incompetency?"

In a conversation with the Surgeon General in his own office, and in two other conversations in my own home, with two of his principal assistants, all admitted that there has been no improvement that would obviate a repetition of this condition. The American Army has now line officers for about 100,000 men, and has medical officers but for about 60,000, and since the increase of the army, the medical department is worse off in numbers than it was before. In my testimony before the military committee in Congress last February, I used this language in addressing the members:

"Now, gentlemen, unless the Medical Department is put on a higher plane, where it can exercise the power of direction and supervision, unless it is elevated and fortified with the power necessary to carry out its purposes, you will have a repetition of the sad experience you have had heretofore in the next emergency that arises in the country. Just as sure as the heavens are above the earth, so surely you will have the same nauseating, miserable, wretched repetition of affairs that we had in the Spanish campaign if we

have an army called together hastily in the summer time without a proper medical organization. You must either have the proper organization or you must take the consequences."

I want an organization with power for medical men to enforce sanitary regulations without the interference of staff officers. It seems to me this discussion has been sufficiently prolonged, and therefore, I thank you.

Major W. C. BORDEN, U.S.A.—The Army is officered for 100,000 men except the Medical Department, which has only sufficient for 42,000.

Dr. ANITA NEWCOMB MCGEE.—The chief surgeon of that section of Japan where Hiroshima is was Dr. Fugita, one of the thirteen Surgeon-Generals. He went to the front in July as Chief Surgeon of General Nodzu's army. I put him through a long cross questioning as to the power of the medical officer, and his replies indicated almost exactly the same condition as is the rule in the British Army. The line officer in the field must be in command, but if a medical officer makes a recommendation, and the line officer does not follow it, then it is sent through his chief surgeon to the ranking line officer. If still ignored, and the matter is important, it is referred to the Chief of the Sanitary Corps in Tokyo for final action at headquarters there.

Major SEAMAN.—In a conversation with Field Marshal Oyama in Mukden last summer, he substantially stated the same point Dr. McGee has just made.

THE PROPOSED FRENCH ASSOCIATION OF MILITARY SURGEONS.

THE editorial reference in the September number of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS to the proposed French Association of Military Surgeons is made the subject of an interesting note in *Le Caducée*, the journal under the auspices of which, it will be remembered, the movement for the Association was inaugurated. After giving a translation of our editorial remarks, by Surgeon Charles Vigné of the Naval Service, the editor states that the project of a scientific Association of Military Surgeons was submitted by one of the leading members of the Sanitary Corps to General André, Minister of War, who had agreed to it, but the matter still sleeps in the pigeon holes of the Ministry. If M. Berteaux exhumes it, continues *Le Caducée*, he will do much for the sanitary service and consequently for the soldier himself.

THE SICK AND WOUNDED IN THE RUSSO-JAPANESE WAR.

By COLONEL VALERY HAVARD,
ASSISTANT SURGEON GENERAL IN THE UNITED STATES ARMY;
MEDICAL ATTACHÉ WITH THE RUSSIAN ARMY
IN MANCHURIA.

DISEASE AND HYGIENE.

THE excellent health condition of the Russian and Japanese armies is a most gratifying feature of this war, one upon which the whole civilized world may well congratulate itself. It is evident that the lessons of the past have borne some fruit, and we may fairly hope that the wars of the future will not be attended with the frightful mortality from camp diseases which, up to this war, has always so greatly exceeded the mortality from wounds incurred in battle.

Complete statistics will doubtless be published on both sides, in time, but even now we have enough data to present a near estimate of the sanitary status of the Russian and Japanese armies during the war.

According to the Russian official statistical report of July 28, 1904, the ratio of the sick, before the rainy season, up to June 13, was (officers excluded) 32.82 per 1,000 of strength. On July 26, after the rains had set in, the ratio had increased to 37.42, that is, less than the ratio of men generally excused from duty at most of our posts in time of peace. On that date, the number of sick with contagious diseases was 1,117, including all cases of dysentery and diarrhea. There were only 34 cases of typhoid fever, 15 of typhus and 9 of recurrent fever. The number of typhoid fever cases however rapidly increased up to 951 on August 26.

Owing to the difficulty of preparing and transmitting reports in the field and the strong tendency of human nature to minimize whatever is to our disadvantage, it is probable enough that the figures here given more or less understate the reality.

The Russian official report issued in December, 1904, gives the ratio of the sick per 1,000 of strength, in the Manchurian armies, for each month (excepting January and December) as follows:

February.....	26.22	July,	39.19
March.....	19.78	August	29.28
April.....	11.98	September.....	31.51
May.....	15.71	October.....	23.21
June.....	28.69	November.....	19.98

These ratios were less than for troops in Russia during the same months.

On December 8, 1904, there remained in all hospitals and other sanitary establishments, 819 sick officers and 17,384 sick soldiers, being at the rate of between three and four per cent. On that date, the capacity of all available hospitals, in Manchuria and adjoining zones, was at least 30,000 beds.

On February 8, 1905, there remained in hospitals 873 officers and 17,892 soldiers.

The official report of General Trepoff, Commanding General of the Medical Department in the field, for the period from the beginning of the war to the end of the year 1904 (January 14th, Gregorian calendar), furnishes us valuable information. According to this report, the total number of sick and wounded evacuated to Harbin and to places east and west of it (Nonni, Chita, Irkutsk, Nikolsk, Khabarovsk, etc.) was 130,439 officers and men, namely:

	WOUNDED.			SICK.			TOTAL.
	Officers.	Men.	Total.	Officers.	Men.	Total.	
	1710	80	55000	0	72531	74889	130439
WHO WERE DISPOSED OF AS FOLLOWS:							
Dead	45	1282	1277	62	2088	2730	4007
Invalided.....			6474			11248	17722
Returned to							
Russia.....	559	4121	4680	670	4079	4749	9429
Remaining in							
Hospital.....	152	4953	5105	634	15815	16449	21554
Returned to							
duty.....			38064			38063	77727
Totals.....			55000			74889	130439

Of all the sick and wounded reported above, it can safely be said that, before the end of the war, more than two-thirds of the former and three-fourths of the latter had been returned to duty.

To obtain the total number of sick and wounded at the close of the year 1904, it would be necessary to add to the number evacuated to, or beyond, Harbin, those remaining in all the hospitals south of Harbin; of the number of the latter I have no data; I do not believe it was very great, since the policy of the Medical Department was to ship patients as soon, and as far as possible, so as to keep the field and nearest base hospitals always available. We may set it down as not exceeding 5,000.

The percentage of deaths among the sick and wounded during and after their evacuation from the front, namely 3.64 for the sick and 2.29 for the wounded, is wonderfully small, when the hardships and sufferings inseparable from the methods of transportation are considered.

The number of sick is seen to be greater than that of the wounded, in the proportion of 1.35 to 1. If we add the killed to the wounded, the total of sick would still be somewhat greater than the total of casualties, as 1.12 to 1.

During the year 1904, the total number of Russians killed in action or who died from wounds cannot have been less than 20,000 (exclusive of Port Arthur); during the same period the number of deaths from disease, according to the above report, was only 2,730; a ratio of seven to one.

During the year 1905, up to the close of hostilities, about May 1st, two important battles were fought and various skirmishes, with a resulting total of wounded that cannot be less, but is probably more than 100,000. If during this period of four months, we assume the same ratio of sickness that prevailed in 1904 (and there is good reason to believe that it was rather less than more), the number of sick would be under 40,000. Adding together the data of both years, we find that, for the whole war (or more strictly speaking up to May 1st) the total wounded is to the total sick as 155,000 to 115,000, or in the proportion of four to three.

As to the comparative numbers of deaths from disease and

wounds, we find that they were approximately 6,000 and 47,000 respectively, or in the proportion of about one to eight, a result far transcending the most sanguine expectations of military hygienists.

During May of this year, and thereafter, newspapers contained rumors of serious epidemics of dysentery or even cholera at Harbin and vicinity; but they have not been confirmed and were evidently due to grossly exaggerated accounts of the usual increase of diarrheal complaints which might be expected during the rainy season.

Concerning typhoid fever, we find that, during the month of November, 1904, the numbers reported in all military hospitals east of Lake Baikal, were as follows:

Remaining on November 1st.....	1962	} 3224
Admitted during the month.....	1262	
Cured.....	297	} 3224
Convalescing.....	1558	
Dead.....	204	
Remaining on November 30th.....	1165	

If, in this statement, we add the convalescents to those marked remaining on November 30, we have a total of 2,723 which is the highest number reported at any time, giving a ratio of about 4.75 per 1,000 of strength. It is doubtful whether this ratio ever exceeded five per 1,000 (up to May 1st, 1905). We may compare it with the ratio of 150 per 1,000 which prevailed in the U. S. camps in 1898.

According to the above data, the rate of deaths from typhoid was about 6.5 per cent. While visiting the Harbin hospitals, in January, I ascertained that the mortality, then and there, was about ten per cent, rather more than less, a number of patients having doubtless died from the result of the long railroad journey.

Typhoid fever is not rare among the Russian civil population of Manchuria but has never prevailed in epidemic form. In Harbin, it begins in July or August and lasts until November or December. During the year 1904, there were about 250 cases treated in the civil hospitals of that town.

Outbreaks of typhus might have been reasonably expected in winter, considering the crowded condition and bad ventilation in the dugouts in which the Russian soldiers lived. A few cases

were always present in the Mukden hospitals, the original contagium having probably been brought from Russia. I saw at least half a dozen. They were in a ward by themselves but without any special measures of isolation. Yet this disease never spread beyond the sporadic form.

Dysentery is not rare in Harbin among the civil population, from May to August, that is, during the rainy season, under the amoebic and bacillary forms, especially the latter. Among soldiers it has never been epidemic; in fact, true dysentery was uncommon, most cases so-called being dysenteric diarrhea from which patients recovered in a few days.

Port Arthur, during the siege, would seem to have combined the most favorable conditions for the spread of epidemic diseases, but after its surrender and before many patients had been removed, towards the end of February, there were only three cases of typhoid fever and forty-eight of dysentery; scurvy (1,997 cases) being by far the most prevalent disease.

Malarial fever, speaking broadly, does not exist in Manchuria, the few cases on record having probably originated in Russia and Siberia.

Venereal diseases are not mentioned in the official lists, but it is well known that they were widespread and far exceeded all other classes of diseases. Except in Harbin, practically a Russian town, the regulation of prostitution was difficult and seldom effective, nor, so far as I could find out, were the men subjected to any special examination or restriction.

Small-pox was practically absent among the troops in the field, a condition reflecting great credit upon the medical department and testifying to the care with which all soldiers were vaccinated or revaccinated before entering Manchuria, and whenever exposed to infection. Likewise absent, or nearly so, were the other specific fevers, scarlatina and rubeola.

An interesting infectious winter disease in the Russian Army, imported from Siberia where it is endemic, but probably never before seen to the same extent in any campaign, is Anthrax, the "Siberian pest" of the Russians, evidently contracted from infected garments, chiefly the fur cap and sheepskin coat. It man-

ifests itself by a large pustule, mostly on the neck or face, and moderate febrile movement. During January, one or two cases were daily admitted, at Mukden, into the hospital especially set apart for it. The type was quite mild, the mortality being only one or two per cent. The treatment consisted in the injection of a five per cent solution of carbolic acid into the base of the pustule and painting the surrounding skin with tincture of iodine.

Of Beriberi, or Kakké, the scourge of the Japanese army, there was no trace among Russian troops.

Whether the Japanese army, exclusive of beriberi, had a smaller rate of disease than the Russian army, I am unable to say; but there is hardly room for doubt that, including beriberi, its rate is higher. According to Dr. Anita Newcomb McGee who speaks from personal knowledge (*Century*, May, 1905), of all the sick from Kuroki's army, in the summer of 1904, seventy per cent had beriberi, while on October 7, of all the sick at Hiroshima hospital, eighty-four per cent had this disease. From data furnished her in Japan, she estimates the proportion of sick to wounded to be four to three. As the Japanese wounded, up to May 1st, cannot have been less than 120,000 (on a minimum basis of 30,000 killed), the total sick would amount to at least 160,000, which is more than has been reported on the Russian side.

Of the cause of beriberi, there is as yet no exact knowledge. It is not materially affected by diet alone, but tends to disappear with improved hygienic conditions. Dr. Hamilton Wright's opinion that the germ is bred in the intestines and disseminated through fecal discharges, as in typhoid fever, seems highly probable.

In Manchuria, among Russian troops, one might have fairly expected certain diseases to break out in epidemic form, such as typhoid fever, typhus, dysentery, cholera, small-pox, scurvy. The experience of previous wars made us apprehend that such would be the case as the result of the enormous aggregations of men under very trying hygienic conditions. But not only have epidemics been absent, but the usual camp diseases have not been prevalent, so that the health of the Russian Army in the field has not been any worse, and during certain months was better, than at home in peaceful time.

Very plausible reasons have been adduced for this happy state of things. It is certain that serious efforts were made, by those in high authority, to place the soldier in as good sanitary condition as possible. No money was spared to secure comfortable quarters, wholesome food and a sufficiency of well-equipped hospitals. The critical foreign observer can easily detect shortcomings and, here and there, lack of organization and management, but it is doubtful whether any other civilized nation would have been able to exhibit better results.

The interest of Commanding Generals in questions of sanitation is well shown, for instance, in the following order issued by General Nadaroff, Commander in Chief of the Army of the Rear:

"HARBIN, January 16, 1905.

"I desire Lieutenant General Kugel to perform the duties of commandant of the hospitals of the Army of the Rear, and Colonel Bogdanoff * * to assume the duties of Director of the chancellery [clerical bureau] of the medical department of this Army, * * *.

"I beg Lieutenant General Kugel to enjoin upon the directing personnel of all hospitals strict compliance with these two fundamental rules:

"1st, Hospital buildings should be kept even cleaner than my own quarters.

"2d, The hospital linen should be frequently washed and kept cleaner than my own linen.

"The rest accordingly.

"In general, I desire that business on hand receive the chief attention, while paper work should occupy a secondary place.

[Signed] LIEUT. GENERAL NADAROFF."

We may question the practicability of the above two rules and, therefore, the wisdom of enjoining their execution, but there can be no doubt that they were the expression of a genuine solicitude for the welfare of the sick and wounded. General Nadaroff not only issued orders but personally inspected hospitals to ascertain to what extent they were carried out, and some of the hospital surgeons complained that he also meddled with professional matters beyond his competency.

Concerning the hygiene of camps, it varied much, as must always be the case, according to the knowledge and experience of commanding officers and the extent to which they saw fit to carry out the recommendations of the medical officers. An ex-

cellent feature, from the hygienic point of view, was the scattering of troops, seldom more than one regiment (3,000-4,000 men) being encamped together. In fact, as part of each regiment was constantly on duty along the line of positions, it was unusual to have more than one or two battalions at the same time in each regimental camp. The extended and more or less scattered formation of troops in modern warfare certainly helps in preventing insanitary conditions and the spread of disease.

Nearly all the drinking water was obtained from wells twenty to forty feet deep. In the cold, snowless Manchurian winter, such wells can be kept entirely free from contamination, since the frozen ground does not permit any drainage of surface waters into them. They are greatly preferable, as source of water supply, to a stream flowing near or through many camps and surrounding villages and susceptible of infection at many points, although such a stream would also be much less liable to contamination in winter than in summer. This well water, as a very general rule, was remarkably good, somewhat rich in mineral substances but tolerably free from organic matter.

I was assured that, in the first part of the war, including the Liaoyang campaign, the sanitation of camps was very much neglected, that, for instance, no latrines were dug; a place, perhaps, being simply set apart for defecation. If so, during the winter 1904-5, the conditions had certainly much improved. The several regiments I visited at the front had the same system of privies. In some spot, as far as possible from kitchen and water supply, parallel narrow trenches were dug, a foot wide (or less) and one to two feet deep, over which the men generally squatted astride, the earth from the new trench being thrown over the trench already filled up. I saw no evidence that these latrines were not used by all the men. In winter, when the earth is hard frozen, digging is hard work, but becomes easier the deeper one goes, so that it might have been more advantageous to make the trenches six or more feet deep; but, on the other hand, this would have required greater width and the use of a pole, with supports, for the men to sit on, and economy of material had to be considered. It must also be admitted that, with shallow trenches, there is less danger of well contamination.

The regimental camps I saw were kept clean, most of their area being swept every day, and the garbage being either burned or buried. Sweeping, in camps, especially in a dusty country, should, I think, only be done when and where necessary, and with judgment, a general daily sweeping of all grounds being productive of more harm than good. Each camp, if somewhat permanent, had a bath-house for hot water and vapor bath, but such bath-house was necessarily crudely equipped; it was too small, and the supply of water and fuel too limited to enable many of the men to avail themselves of it.

Most of the food and drink of the Russian soldier are so prepared that they cannot transmit infectious germs. All the ration, bread excepted, is thoroughly cooked in the company kitchen, and therefore sterilized as well as rendered perfectly digestible. The bread (rye brown bread) is mildly laxative so that constipation is unknown in the Russian Army, the bowels always moving freely and abundantly, a matter of importance from the hygienic point of view. The Russian soldier's ordinary beverage is tea, a mild infusion of a grayish-black Chinese tea which can be drank in large amounts without unpleasant effect. The Russian is not satisfied with hot water tea; he always wants it made, as it should be, with boiling water which is easily obtained from the company kitchen boiler. Most of the liquid ingested, therefore, is in a sterilized form, either as tea or soup.

It is also true that hospital accommodations were adequate, so that infectious diseases could be promptly segregated; no febrile case was kept in the regimental infirmary, a most important and efficient measure of prevention.

In spite of all this, I cannot help thinking that the absence of typhoid fever and dysentery, in an epidemic or very prevalent form, is not yet satisfactorily explained. The Russian soldier preferably drinks tea, but tea is not always within reach, and, on frequent occasions, in summer and fall, he quenches his thirst at any convenient well or stream, any order to the contrary notwithstanding; in that regard he follows the example of the Japanese soldier and of any other soldier in like circumstances.

Flies have been accused of being the chief transmitters of

typhoid infection. They breed numerously in Manchuria, and, in summer, swarmed in the camps. Excreta were not lacking: in most instances, even where trenches were used, being more or less exposed and accessible to flies. Another conveyor of infection, dust, is also abundant. Manchuria is the land of dust, especially in the fall and winter, and no possible precaution, in camps, can prevent soldiers from ingesting it with their food and inhaling it with their breath. Means of propagation, then, were not wanting, and if the Russian, as well as the Japanese soldier, remained exempt, it is, I believe, because there is in them a natural want of susceptibility to this disease, the same insusceptibility that we observe in the Chinese and other native races of Asia and Africa. This comparative immunity to typhoid fever may be explained in two ways: In countries where sanitation is primitive and neglected, the people being constantly exposed to infection, a majority of them contract the disease in infancy or childhood, probably in a mild form. On the other hand, it is contended that diet plays the chief part in causing this immunity. Asiatics eat but little meat and subsist mostly on vegetables, cereals and leguminous, whereas English-speaking and other peoples, who suffer most, consider meat an essential, often the most essential part of their diet. Which of these two causes is most effective, or whether both are operative, it is at present impossible to determine. I am myself inclined to attach great importance to the preventive action of a vegetable diet.

From this war it would seem that we might well draw the lesson in the physiological economy of nutrition that Prof. Chittenden has drawn from his very remarkable experiments. Both Russian and Japanese, although fed upon rations which American and English soldiers would reject with scorn, are men of vigorous constitution, who, for strenuous work and endurance of hardships can hardly be excelled in the civilized world.

The Japanese attribute their physical and mental strength to their plain frugal diet, the free use of water (internally and externally), gymnastics and temperate habits. A laborer will work a whole day on a dinner of tomatoes, cucumbers and salad, but I hope it is seldom that he is obliged to do without his favorite

bean soup or boiled rice. Tea is taken without milk and sugar. The national alcoholic beverage, saké, is nothing but beer; it is only drank by those who can afford it and always in great moderation. Smoking is indulged in with a diminutive pipe holding a few pinches of tobacco. The result of this regime is a race of small stature (as compared with Chinese and Coreans), prone to beriberi, but hardy and sturdy, and, as we know, with wonderful mental power of expansion and assimilation.

PROJECTILES AND GUNSHOT WOUNDS.

The shells of the Japanese field artillery are of two kinds, the ordinary shrapnel shell, with range of 3,000 to 3,500 meters, and the shimose shell, with range of 5,000 meters. The shrapnel shells were much more numerous and did most of the execution. The shimose shell explodes with great noise on striking the ground, excavating a little crater and giving off a small cloud of thick brown smoke. Except when exploding within a short distance, it does but little mischief, for it breaks into a multitude of fragments most of them minute and without much power of penetration; thus it is not infrequent to find a patient whose skin is peppered with numerous tiny bits of metal, none of which penetrates the deep fasciae. I was told of a patient who survived the removal of 300 fragments from his skin and muscles.

The Russian cartridge weighs twenty-four grams. The bullet is 7.60 mm. in diameter, with cupro-nickel jacket; it weighs 13.7 grams and has an initial velocity of 640 meters. The Japanese cartridge weighs 22 grams and is charged with 2.10 grams of Itabaski smokeless powder. The bullet is 6.50 mm. in diameter and 32 mm. long, of hard lead, with jacket of German silver; it weighs 10.50 grams and has an initial velocity of 725 meters.

The Japanese bullet is hardly ever deformed in the human body, and its smooth, clean jacket rarely broken or detached from the core. It is certainly, on all grounds, one of the most humane bullets ever used in warfare. It has been known to pass through all the structures of the body, including heart and brain, without fatal effect. According to Dr. Zæge von Manteuffel, there were officers who after being shot through the leg, chest or

neck, continued at their posts during the battle. He has seen five cases of wounds of the heart recover without treatment. I was assured by Dr. Butz, chief surgeon of one of the large Red Cross hospitals at Mukden, that, in at least three cases under his observation, which entirely recovered, the bullet, judging from the location of the holes of entrance and exit, must have passed through some part of the heart. Dr. Zeldovitch mentions soldiers who, after being shot through the lungs, walked twelve to eighteen miles almost immediately afterward.

As in previous wars, it has been noted that men not mortally wounded on the battlefield have excellent chances of rapid recovery. The wounded who reach a base hospital alive are almost sure of getting well, or at least of saving their lives, the mortality in such hospital being very small. It is the opinion of Russian surgeons that one-third of the wounded are returned to duty within a month or six weeks. This is especially true of wounds received in summer, when the clothing is thin, scant and comparatively unsoiled, therefore when infection of the wound is less likely. The chief surgeon of a field hospital reported that among the 310 wounded returned to duty within six weeks after the battle of the Yalu (May 1, 1904), there were eight cases of perforated chest and three of perforated abdomen.

Severe hemorrhage is hardly ever seen during transportation or after admission to hospital; the patient rapidly bleeds to death on the field, or else the hemorrhage is easily controlled. That serious injuries to blood vessels, from gunshot wounds, may occur without fatal results, is not infrequently demonstrated; thus I was shown, in the hospital Shuvaloff (by Prof. Sianojentzky), a piece of femoral artery perforated (not severed) by a Japanese bullet, and fragments of a tibial artery which had been completely cut, both patients getting well.

The following statistics of work done at the battle of the Yalu, by field hospital No. 15, may give an idea of the relative proportion in which the parts of the body are hit, and some of the results:

Out of 1129 wounded, the parts struck were as follows :

Lower extremities.....	416	"	37	per cent
Upper extremities.....	309	"	27	" "
Chest.....	221	"	19	" "
Abdomen.....	107	"	9	" "
Head and neck,.....	76	or	6	" "

Bone injuries were found very benign, splintering or comminution existing in only nine cases. In wounds of the cranium, only three were complicated with extensive fracture. In wounds of the joints of the lower extremities, recovery was very slow. There were very few amputations; two were required for gangrene. In perforating wounds of the chest (37), hemoptysis was always noticed but subcutaneous emphysema was quite rare.

Of perforating wounds of the abdominal cavity, twenty-five cases came under treatment. No operation was possible or attempted. Within twelve days seven died, a mortality of twenty-eight, per cent. Some of these cases had traveled forty miles in rough carts; others came on horseback; only a few were brought on stretchers; eight arrived with peritonitis. That only seven died under such conditions is, indeed, most remarkable,

Dr. Kholine, of Moscow, noted that in thirty-nine cases of perforating wounds of the thorax, the bullet lodged in only one case. In twenty-one cases there was hemoptysis lasting from one to six days, while subcutaneous emphysema was only noticed in three cases. He also reports that, out of twenty-seven cases of abdominal wounds, only one death occurred. Dr. Von Manteuffel thinks that peritonitis in such cases is mostly the result of rough transportation, and this opinion is shared, I believe, by most Russian surgeons.

The innocuousness of abdominal wounds inflicted by the Japanese bullet, is often wonderful. In Harbin, I saw a patient who had been shot simultaneously through the abdomen (antero-posteriorly) and the fleshy part of the thigh; when brought to the hospital, several days later, the thigh wound was infected and painful, but the abdominal wound had entirely closed up and the patient hardly remembered that he had been shot in that region. In another case, exhibited in Captain Reichmann's fine collec-

tion of war photographs, a bullet is seen protruding from the right side of the abdomen, the soldier quite able to stand up to be photographed.

Wounds of the head and spine continue to be very dangerous. Wounds of the neck often show remarkable instances of the narrow escape of bloodvessels and spinal cord, the bullet separating tissues rather than cutting them. To note only two cases I saw in Mukden, both convalescing: in one, the bullet entered at the point of the chin and came out close to the spine on the right side; in the other (Prince Murat, volunteer French officer), the bullet perforated the neck from side to side, coming out close to the internal carotid, or between it and the jugular vein.

There has been less stress laid on the so-called explosive effects of the bullet in this war than in previous wars. It may be partly because most of the battles were fought at middle or long ranges. I doubt whether I saw more than one or two cases in the Mukden hospitals which could be attributed to explosive action. Dr. von Manteuffel, in his treatment of numerous wounded, after Liaoyang, did not find a single instance of explosive effects, although some of the wounds had been received within a range of 100 yards. However, he is not prepared to state that such effects do not take place in the brain, as all the wounds of the cranium he observed had been received at distances of at least 900 yards.

Cases of multiple wounds are common, patients being hit by several bullets simultaneously or within a short time, often in the same exposed part. One patient is reported as having received eight separate wounds, six of which in the left lower extremity, and to have survived. I saw in one of the Mukden hospitals a patient whose lungs had been perforated by three separate bullets and his arm smashed by a piece of shell. General Keller, when killed, was struck by five fragments of a bursting shell and thirty-one shrapnel bullets in different parts of the body. In one of the Japanese reports, appear the adventures of Private Yasawa who was shot in the face, clubbed on the head with the butt of a musket and bayoneted in the side, the bayonet break-

ing and three inches of the point remaining in his body, but who survived to tell the tale. It was found that his uniform was pierced by eight bullets and his cap by one, while his rifle was broken into three pieces and his bayonet in two.

WOUND INFECTION.

Nothing in this war has disproved the general belief that the modern bullet is practically aseptic. That the infection of wounds depends chiefly upon the skin and clothing of the soldier is well shown by the striking difference in the proportion of infected cases between summer and winter. Thus in the Mukden hospitals, hardly 10 per cent of wounds were infected in summer, while, in winter, hardly 10 per cent escaped infection, despite the primary dressing applied to most of them. The cause is evidently the difference in the condition of the skin and clothing. In summer, men are more inclined, and have better opportunities to bathe; the clothing is thinner, mostly of cotton, and the underwear more frequently changed. In winter, the clothing is not only thicker, but some of it lined with fur, and, in his warm, soiled garments, the soldier remains day and night, for days and weeks. The natural result is contamination of the wound through dirt or particles of clothing, becoming the more marked according to the number of days the wound is left untended. This infection, however, is not usually serious; except in cases greatly neglected, it remains superficial and localized and seldom gives rise to marked constitutional symptoms.

Of the two causes of infection above mentioned, dirt and particles of clothing, it is quite probable that the first is much more common than the second. Dr. Kholine, in his examination of the clothing of many wounded men, found that the hole made by the bullet had almost always the appearance of having been cut, as by the point of a knife, without the least loss of substance, so that the carrying of shreds into the wound must be a very rare occurrence.

Dirt, whether from the surrounding skin or soiled garments, is not only much more abundant in winter than in summer, but has generally more time to act upon the wound on account of the greater difficulties in transporting the wounded to first-aid stations

and field hospitals, and therefore the longer time elapsing before they receive appropriate treatment. If it be true that the bullet is aseptic and that, as a rule, no particle of clothing enters the wound, then infection must take place principally *after* the receipt of the wound, and, I believe, chiefly from contact of soiled clothing.

After pitched battles, it always happens that many wounded cannot receive prompt attention; however well organized the service may be, a certain number of patients will be brought to field hospitals without dressing, two, three or more days after the receipt of their injuries; at least it was so among the Russians and I doubt very much whether such a misfortune could be avoided on the Japanese side. But even in such cases, it is remarkable how quickly these old neglected, infected wounds respond to antiseptic treatment and how easily blood poisoning can be averted. I saw a patient slowly recovering from suppurating wounds of both thighs who had been left unattended for two weeks. Cases of gangrene must be rare; I only remember seeing one patient who had lost his leg from gangrene for want of timely treatment.

From the above remarks the conclusion might be drawn: that, were the soldier able to carry out all the prophylactic measures which military hygiene suggests, he should, on the eve of a battle, take a warm bath with brush and soap, put on fresh, thin linen and don his cleanest and lightest uniform. He might carry these measures still further by taking a purgative and going into the fight with an empty stomach or after a very light liquid meal. The soldier should be well fed, but on the day of battle his intestines should be vacuous. It is interesting to note that, among Japanese officers, there is an old custom of washing the body and putting on clean underclothing before a fight, arising from the commendable desire not to expose an unseemly corpse to the enemy.

REMARKS ACCOMPANYING THE EXHIBITION OF SOME NEW SUTURE MATERIALS.

By COLONEL NICHOLAS SENN,

SURGEON GENERAL OF THE ILLINOIS NATIONAL GUARD.

THE use of absorbable animal ligatures has for thirty years been of interest to military as well as civil surgeons. I would call your special attention to iodized catgut which I have used for two or three years. It is almost as strong as silk, and it can safely take the place of chromicized catgut and other kinds of durable catgut. I have substituted for silk, linen, as silk seems to lose its strength by repeated boiling. The linen will become encysted the same as silk. I rely on iodized catgut for the buried suture and the linen I have substituted for silk. I wish to present for your inspection several animal suture materials which I brought with me on my recent trip to the arctic region and which I believe will furnish material far superior to catgut for ligatures and sutures. All the sea animals such as the whale and walrus have a strong fibrous tissue for suture purposes. I shall give them all a trial. The narwhal tendon furnishes a fine suturing material and is used by the Eskimo women in making clothing and boots. It is very strong and can be prepared and rendered aseptic as readily as catgut. I also show you a vegetable material which is the fibre of a plant that I found in New Zealand and is an excellent substitute for horse hair for superficial suturing. I pass around for your inspection unprepared whale tendon, iodized whale tendon, iodized narwhal tendon, iodized catgut No. 3, unprepared walrus tendon, iodized walrus tendon, and vegetable fibre all of which I intend to give a thorough trial in my surgical clinic and hospital practice and report to you on the results at some future meeting

NOTE ON DERMATOBIA NOXIALIS.

By ALLAN STUART, M.D.,

PASSED ASSISTANT SURGEON IN THE UNITED STATES NAVY.

THE patient, an ordinary seaman, was transferred to the United States Naval Hospital at Chelsea, Mass., from the U.S.R.S. *Wabash*, suffering from scabies.

He was a straggler from the U.S.S. *Chicago* and was left behind in Mexico when that vessel sailed from Acapulco. He worked his way to Punta Arenas, Costa Rica, by sailing vessel. From this port he started to walk overland bound for Port Limon. At a place called Pascua he stopped for two weeks to work on a banana plantation. He took a bath every morning in the river and remembers being stung by yellow-headed flies when stripped for the bath.

After the itch cleared up four or five boils were noticed which refused to yield to the usual treatment. A small teat-like projection was observed protruding from a circular opening in one of the boils, and when it was touched it was immediately retracted. Suspecting something alive inside the boil, a crucial incision was made and the four corners of the wound lifted, and a worm which has been identified as the larva of the *dermatobia noxialis* extracted. This worm corresponds exactly with the description given by Scheube in his work on "Diseases of Warm Countries."

Scheube states: "This fly, which appertains to the family of the Ostrides (gad-flies), occurs in America, from Brazil to the south of the United States, where the larva is known by various names. In Mexico it is called Ver moyocuil or mayacuil, in British Honduras, Cormollote or Beef worm (the fly itself is here called Anal Coshol), in Costa Rica it is named Torcel and Suglacuru, in Columbia it is known as Nuche and Gusano peludo,



**Dermatobia
noxialis.**
(Pen sketch of
his case by
the author)

in Cayenne it goes under the name of Vermacaque, and in Brazil, it is designated Berne and Ura.

"The fly [see Fig. 2] is 14 to 17 millimetres in length. Its head is yellow, the upper surface of the thorax dark grey, the abdomen a bright steel-grey, dirty white at the base, and the wings and legs are of a yellowish-brown colour. It mostly lays its eggs in the skin of cattle, sheep and dogs, and sometimes in the skin of man. The spots preferred by the fly in which to deposit its eggs are, according to Frantzius, the head and the trunk, incidentally also the eggs are laid in the conjunctiva and in the lachrymal sac.



Dermatobia noxialis—
the Fly.
(After Goudot)

"The larvae are described variously; the reasons for this being that, according to the stage of their development, they exhibit a different configuration; probably, also, several kinds of dermatobia exist in different countries, as well as in any given district.



According to Goudot, the larvae [see Fig. 3] are three centimetres long, of a whitish colour, and a club-like shape. They are thicker at the anterior than at the posterior part; the anterior half of the body is beset with hooklets and prickles, and is, besides, provided with two strong oral hooks. They cause an inflammatory reddish swelling, which may become almost the size of a hen's egg (so-called gad-fly boil). A small opening is observed in the centre through which the creature breathes, and through which also it voids its excrement as small black particles mixed with the exuding seropurulent fluid. The posterior extremity is provided with the stigma—the respiratory organs."

Dermatobia
noxialis—the
Larva.
(After Goudot)

Contemporary Comment.

PORTABLE ISOLATION ROOM FOR HOT COUNTRIES.

By DR. MARCHOUX,

TRANSLATED BY MAJOR CHARLES WILLCOX,

SURGEON IN THE UNITED STATES ARMY.

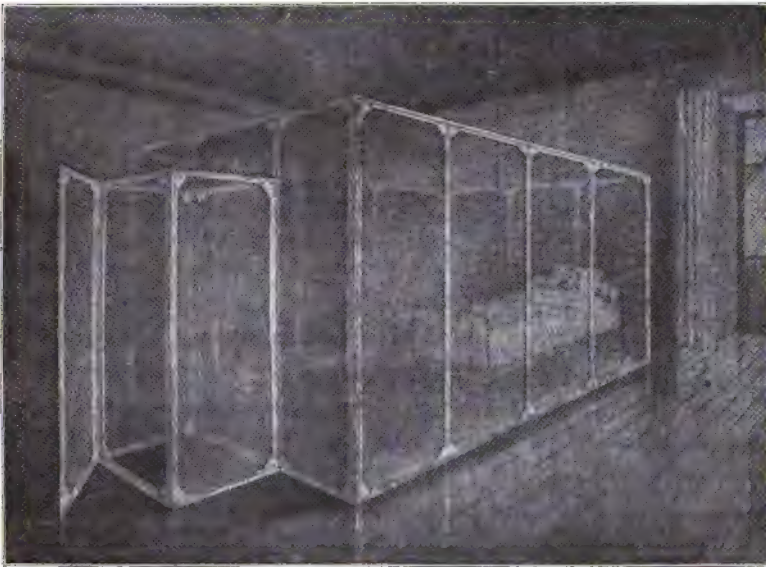
THE study of the pathology of hot countries and the important discoveries that have been made in these last years, have shown the important role that sucking insects play in the transmission of infectious diseases. We are inoculated with malaria, yellow fever, filariasis, and perhaps other diseases, by various kinds of mosquitoes. The glossinae and tabanidae are the transporting agents of diseases in the trypanosomata.

This list does not include the more or less doubtful ones that parasitic insects are probably capable of transferring to us. For this reason everything that is effective in guarding us from their bites at certain times, will render the greatest service. It is in the hope of sometimes facilitating the task of the physician practicing in the tropics that I have decided to make known an apparatus that, constructed according to my ideas, is in use in the isolation hospital at Rio de Janeiro, as shown in the illustration.

It is a cage three metres long by three wide and two metres fifty in height, composed of a frame of solid iron, on which is placed a metallic net work with meshes of one-half millimetre. This room is provided with an anteroom, eighty per cent the depth of the room itself, closed with two doors of 0.80 size and two metres in height, that open, one on the inside and one on the outside. A system of weights prevents both doors being opened simultaneously.

The rooms are large enough to hold a bed, a table, and allow one to pass around the patient. The constructor now

makes them with separate panels so that they may be given variable dimensions. Whatever be their size they offer to insects an impassible barrier, behind which the patient is not deprived of air. They offer a great advantage over the screening of windows and doors. If by a faulty movement or an error of commission a mosquito is admitted into the interior, his finding and destruction are very easy, contrary to that happening in a room much larger and much more obscure.



Portable Isolation Room.

Thanks to these portable rooms it is very easy to transform a certain hospital or even simple barracks into a model isolation hospital, since it allows individual isolation to which so much importance is nowadays attached.

A simple sheet held along one side prevents two neighboring patients from seeing each other. Visitors can talk to those isolated without coming in contact with them.

It is certain that these advantages are important and are not the only ones that these metallic chambers have. Their use will surely bring to light many others.—*Le Caducée*.

WOUNDS IN THE RUSSO-JAPANESE WAR.

By DR. MATTHIOLINS,

OF THE IMPERIAL GERMAN MARINE.

TRANSLATED BY MAJOR CHARLES WILLCOX,

SURGEON IN THE UNITED STATES ARMY.

AT the battle of Chemulpo the cruiser *Variag* was put hors-de-combat in fifty minutes by the guns of an enemy infinitely superior in force, without being able to do any harm in spite of her fifteen centimetre guns and her superior speed. In this short space of time there were forty-one killed and eighty-four wounded, that is eighteen per cent of her forces. From this fight, as well as from the others near Port Arthur, it is shown that on the large vessels, battleships and cruisers, the wounded are almost entirely amongst the marine combatants strictly speaking, who during action are on deck or in the superstructures. On the other hand, in the small vessels, such as torpedo boats and torpedo-boat destroyers, a large part of the wounded are found amongst the personnel of the machinery and burns are especially frequent. This is perfectly explained by the fact that in the larger fighting units, the engine and machinery compartments are protected by armor.

As to the nature of wounds, it is terrible on account of the large calibre of projectiles and their power of penetration. Some men are actually cut to pieces; in the cases of a certain number of men of the *Variag* immediate amputations were necessary; a Russian marine received 160 wounds from the bursting of a shell. The flames and enormous quantity of gas caused by the explosion of large projectiles also produce very grave wounds.

While the wounded Russians of the *Variag* were nearly all taken care of on neutral vessels, owing to their not having had time to establish a base for rendering them assistance; the Japanese were able to prepare at their leisure everything that was

necessary to give assistance to their wounded who were much less numerous. Besides, their role of aggressor gave them time to prepare in advance. Thanks to their hospital boats they had every facility for the evacuation of their wounded to their hospitals at home. The Russian fleet at Port Arthur had the same facilities for caring for their wounded in the hospitals of the fortress, a great advantage over caring for them on the sea.

The land battles have shown us for the first time, great bodies of men, armed with small rifles, grappling with each other. The Russian rifle is 7.62 mm., the Japanese 6.5 mm., both are magazine pattern with steel covered bullets. The weight of the Russian bullet is fourteen grams, with an initial velocity of 725 metres. At the battle of the Yalu the Japanese lost 2.14 per cent of the effective strength, the proportion of killed to wounded being 1:3.9. In the following battles the total losses of the Japanese were ten per cent and the proportion of killed to wounded 1:4.41, but very variable among the different corps engaged. Most of the wounds are caused by firearms, at long or short range, but the bayonet also plays an important rôle. Many men have multiple wounds, as many as five or six, and it has been shown that the same projectile kills or wounds several. Occasion has been given to verify the fact that wounds of the soft parts, made by small calibre bullets, offer a very mild prognosis and heal in a few days under a simple dry antiseptic dressing. There have been reported many cases of perforations of the lungs cured in fifteen days, with only the symptoms of a trifling spitting of blood during the first days.

The Japanese have practiced the principle of the rapid evacuation of their wounded to the rear, a practice carried out under excellent conditions by means of the hospital ships. Besides the regular sanitary organization of the army, the Red Cross and the Lady Volunteer Nurses Association have played a large part in rendering very appreciable services.

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Editorial Expression.

CONGRESS AND THE ARMY MEDICAL DEPARTMENT.

WHEN we assert that the reorganization of the Army Medical Department is the most important subject to be brought before the present session of Congress, we are fully aware that the statement will meet in some directions with incredulity and disbelief. We are not now in the throes or at the end of actual hostilities in which the consequences of deficiencies in military medical organization have produced disaster in the field and death in the ranks. We have today no army at the mercy of a more sagacious foe because of the physical defects of the men behind the guns, who have been deprived of their rightful heritage,—ample hygienic supervision to prevent disease and adequate medical attention to secure recovery from illness. To-day the country is not filled with the wails of weeping friends, the press is not swarming with criticisms of the lack of treatment which has brought sorrow to the families of the nation, the air is not weighted with the clamor of the friends of soldiers sick and dying from causes avoidable by trained and abundant medical attendance. Today the nation is not involved in disastrous defeat of her military forces owing to causes preventable by proper hygiene and suitable sanitary supervision of her armies. But tomorrow a cloud may collect in what now appears to be a clear sky and every one of these conditions will prevail unless proper provision for their prevention is made. Once more, as has happened again and again, the people will be plunged into distress and grief and the nation into humiliation if not defeat,—the more inexcusable when the means of averting it have been proffered with the deepest urgency and the sincerest desire to help, upon the part of those whom experience and observation have best qualified to advise.

In no case has history shown to a greater degree the truth of the quaint and curious old mediaeval quatrain,—

"The Devil was sick,
The Devil a saint would be;
The Devil got well,
The Devil a saint was he,"—

than with reference to provision for the medical care of the soldier. Statistics are not needed to show the importance of proper medical organization for the comfort of the man-at-arms, the morale of the army and the success of hostile operations. The twentieth century looks back upon too many campaigns, recorded in terms of disease and death, not to be fully aware that the times demand action,—action of the most drastic and energetic character. It is indifference and procrastination, not lack of knowledge, which delays the adoption of military medical legislation suitable to avoid, in the future the disasters of the past. The loud cries for sanitary reform which sounded to high heaven during the war of '61 to '65, and the more recent disturbances connected with the emancipation of Cuba have been pushed out of the public attention by insurance scandals, local graft, or political contests. But the smoking nucleus of new misfortune still smoulders in our military fabric, ready to be fanned into flames by the first breath of grim-visaged war.

The most important element of the remedy for this situation is the provision of a properly trained military medical personnel, ample in number and expansible in character. This is provided by the bill for the reorganization of the medical department of the army which at the last session of Congress passed the Senate and was favorably reported in the House of Representatives, although in a mutilated condition which would have enormously embarrassed its usefulness had it become law. The original bill, as worked out in the office of the Surgeon General, revised by the General Staff, approved by Secretary Root and Secretary Taft, and strenuously advocated by the President in a powerful message, will be reintroduced at the present session, and it is to be hoped that it will become law without modification in the form in which it was published in the *JOURNAL OF THE MILITARY SURGEONS* for March, 1904 (vol. xiv, page 201).

The line of the army is officered for a strength of 100,000 men, but the medical department is not equal even to this for it is barely sufficient for a force of 42,000. Simple justice to the soldier; simple justice to the people from whose ranks the recruit must come, the people who we are so proud to say rule the republic; simple justice to the reputation of the nation, would demand that the medical department should be proportionate to other branches of the service.

Of equal if not greater importance is the need for a system which will permit expansion into an effective sanitary body in case of a sudden increase in the army, such as would occur in the emergency of war. It must be remembered that it requires special training to make a military medical officer. A man may be a most accomplished physician or surgeon, but without proper training he will not be a military medical officer. The military physician and surgeon is as much a specialist as the oculist, the otologist, the gynecologist, the neurologist, or any of the other recognized specialists whose preparation requires prolonged study and experience. Admirable doctors are in abundance in America, but military medical officers are in a vast minority. It will not be possible, in case of the mobilization of new troops to go out and pick up civilian physicians who, by donning a uniform, can be transformed into military surgeons. They must be trained in advance or they will gain their training in the hard school of experience and at the expense of the lives and health of the poor fellows upon whom they have literally practiced. The medical reserve corps of the proposed bill will excellently cope with this necessity by providing in the country a body of men of high professional acquirements, who, by education at the army medical school and in many cases with actual experience among troops, will be qualified to take the field at once in response to the call of duty.

The enactment of these features into law is essential to the welfare of the nation, and their enactment,—together with the other details of the legislation worked out by the highest medical, military, and legal authorities of the nation in the reorganization bill,—the medical profession of America demands in no uncertain

voice. Upon their adoption depends the vigor of our forces in active service, the efficiency of our troops in the field, the success of our arms in war, the survival of thousands of loyal and devoted soldiers, and the exclusion of death from a multitude of otherwise sorrowing homes,—consequences which, it is confidently submitted, are of higher importance than that which will result from any other legislation which may be offered at this session of Congress.

THE USE OF MILITARY MEDICAL SOCIETIES.

AN interesting article appears, in a recent number of *Le Progrès Médical*, by Dr. Demmler, a retired French military surgeon, in which he remarks that "the American Association of Army and Navy Surgeons will, in a few days, hold its annual convention. Surgeon General Senn will very probably again bring up the question of a permanent International Association of Military Surgeons, to which he called attention last year at the Congress at St. Louis." For this reason he had thought that it would perhaps be opportune to see what solution could be given to the question and what advantages might result.

He admitted at once the necessity for military medical men to unite in scientific and professional societies. At a period of transformation, such as the present, when science brings every day something new, not only from the medical standpoint proper, but also from the standpoint of armament and tactics, the importance cannot be denied of all those questions involving the main conclusions which may be drawn, relative to the treatment of the sick and wounded, and the dispositions to be adopted in organization and sanitary material. Moreover, it is regrettable to observe that while military medical societies exist in most other nations, in America, in Austria, and especially in Germany,—where each army corps has its local society,—France has nothing of the kind; only a Commission located at the War Ministry, which under the name of *Comité de Santé*, considers the works which appear abroad together with the writings of French army medical officers for publication in the *Archives de médecine et de chirurgie militaires*. He does not wish to speak of this committee, which he believes actually to be more familiar with the publica-

tions made abroad, and which is no more than "the little church" of former times, which lent ear only to the "persona grata." Moreover it may readily be believed that such a committee has no value from the view point of liberty of discussion; of an abundance of communications and cases observed; the union, without distinction of grades, of all military physicians bringing the results of their experiences, their reading, or their voyages. It may also be remarked that at the present day, when the civil element tends more and more to combine with the military element, it is desirable that the physicians of the *reserve* or of the *territoriale*, may profit by the fruits of the experience of their confreres of the Army and, by repeated contact, and a more exact acquaintance with their works, be enabled to appreciate them the more and to consolidate this union so indispensable to the performance of the common service, to which they shall be called.

The evident influence which societies of military medicine may exercise on the progress of the military medical service, as much from the scientific standpoint as from the professional, shows us the great importance of the question submitted by Senn as to the creation of an International Congress of Military Surgeons.

It may be objected that the frequency and rapidity of scientific communications and the publication of numerous treatises or periodicals, already permit the results of observations collected in every country to be laid before the public; as of late years, for example, the battlefield experiences of the Russo-Turkish, the Transvaal, and the Russo-Japanese Wars have given rise to numerous works which may be utilized by other nations. He admits this. However, it cannot be denied that these writings are in general known only to a minority of individuals either of a higher intellectual grade or curious concerning new things, and that to the great mass they remain unknown; and finally, to establish the consequences of an experience, it is necessary in any case to subject them to the revision of an active discussion. Here is precisely where an International Congress of Military Surgeons will be useful,—bringing before those who are interested in such questions, a considerable mass of facts collected under the most diverse conditions of climate, of origin, of epidemics, of the

collection of masses, of tactical situations, etc. All the profit which may thus be derived from the scientific and professional standpoint, may easily be understood;—methods of treatment based upon the more diverse and numerous cases; prophylactic measures deduced from the more varied epidemic conditions; and organization of sanitary formations and their material, regulated by the more habitual tactics of combatants. Thanks to these sources of information, it may become possible to unify methods of dressing, and to confine the material provided to that which experience has shown would be the most efficacious and the least cumbersome. It will be possible to bring into uniform lines the conduct of many classes of wounds. Finally the best basis may be determined upon which the service of the battlefield may be established. It will perhaps even be possible, thanks to a conformity of scientific view, to extend this international medical concert so far as to treat the wounded in the majority of cases (except of course certain individual peculiarities) by a mode of dressing which would not need any new intervention in case they should in consequence of a reverse fall into the hands of their adversaries. Could we not also imagine that if all nations should be brought to adopt identical rules for the organization of their sanitary formations and material, in case of the outbreak of war there might at the same time, be brought on to the field the assistance of neutral powers (neutrality disappearing before the question of humanity) who might place at the disposition of the combatants sanitary formations identical and consequently interchangeable, and so to speak adapted to their means of transportation? These hypotheses are only thrown out for thought, having but a secondary interest in comparison with the other capital questions, the elucidation of which an International Association would permit.

What would be the working conditions of that Association? How could there be established between different nations a line of scientific and professional communication? It is believed that the Congress, which is to meet, may throw some light upon the subject, for, until now, Senn has but submitted the project to the consideration of his colleagues. However, it may be possible now to establish the capital bases for this organization.

It would be necessary first to establish in countries where they did not exist, notably in France, national associations of army and navy physicians, located at the capitals of the governments and composed of a bureau charged with centralizing the communications, writings and periodicals appearing, either from its own members or from foreign associations. These works should be made the subject of reports from members familiar with their languages. They should then be discussed at a public meeting. The results of these discussions should be centralized at the Ministry of War and communicated to the nations interested, to be forwarded to the Chief of the Medical Department and the Council over which he presides, ready to propose to the Ministry such practical application as can be made in the organization of that service. Each year an international Congress should meet in a city designating in advance the bureaus of the different associations and the military physicians which will be able to assist. Two questions should be placed upon the program and should be the objects of special reports bringing not only the personal experience of the reporters but also the communications submitted in course of the year. The conclusions of these reports, the views enunciated, should be submitted to the different governments.

It is believed that aside from some questions of detail, which will regulate themselves in connection with the work of this Association, the two great bases for work should be :

1. National associations in communication with one another working together by the intermediation of their respective bureaus.

2. International congresses permitting the discussion of capital questions and placing at the disposal of the various associations the opportunity to appreciate the methods of professional organization and scientific development in other countries.

It is submitted that the idea proposed by Senn can be realized. It will be the cause of emulation and of effort for all. It will permit the humble who are sometimes ignored and unknown, to demonstrate their value and to take the place so often occupied by the favored who have less knowledge and more worldly wisdom. It will, finally, by its beneficial influence on the fate of victims of war, be of the highest advantage in the development of humanity.

THE TRIBUTE TO COLONEL NICHOLAS SENN.

RARELY has it fallen to the lot of a man to receive while still in the prime of life the plaudits of his fellows to the degree extended to Colonel Nicholas Senn of Chicago, founder and thrice president of the Association of Military Surgeons of the United States. The versatility, energy and ability of Colonel Senn together with a particularly attractive and unpretentious personality have won for him such a host of friends that when the full capacity of the banquet hall of the Auditorium Hotel in Chicago, seating 686 guests, was reached, some forty to fifty more applicants were still unable to be accommodated.

General Joseph D. Bryant, of New York, on behalf of the profession presented the distinguished guest of the occasion with a massive gold medallion bearing on the obverse a bas relief of the recipient and on the reverse the legend "To Nicholas Senn, the Master Surgeon, from his Fellows, November 11, 1905." Miniatures of the medallion were presented to each of the subscribers. His former private students then presented him with a silver loving cup. After acknowledging the testimonial in his customary happy vein, Dr. Senn expressed his thoughts in verse with the dictum of Seneca that "Life is short but Art is Long," as the central ideas.

Addresses then followed upon Colonel Senn's relations to American Surgery by W. J. Mayo, to the American Medical Association by Lewis S. McMurtry, to American Medical Literature by C. A. L. Reed, to Surgical Diagnosis by W. E. Quine, to Medicine and Surgery by John A. Witherspoon and his quality as a traveler by D. R. Brower.

Colonel P. F. Harvey of the Army referred to the courtesy of Colonel Senn to military medical officers and to his contributions to military surgery and touched upon the needs of military medicine in America and the means of supplying them. The Association of Military Surgeons was represented upon the program by Colonel Charles Adams, formerly Secretary of the Association and recently Assistant Surgeon General of Illinois, who aptly declared that "this Association has now many hundreds of members with one heart, and this beats for its founder, Colonel Nicholas Senn"—a sentiment in which the JOURNAL OF THE MILITARY SURGEONS most cordially joins.

News of the Services.

Dr. Roger P. Ames, U.S.A., ordered to Fort St. Philip, La.

P. A. Surgeon J. W. Ames, P.H.&M.H.S., ordered from special temporary duty in New Orleans and from duty in Seattle, Wash., to Ellis Island, N. Y.

P. A. Surgeon J. F. Anderson, P.H.&M.H.S., granted a month's leave.

Surgeon G. L. Angeny, U.S.N., commissioned with the rank of Lieutenant Commander.

Assistant Surgeon F. A. Ashford, P.H.&M.H.S., ordered to rejoin station at Ellis Island.

Lieutenant Frank C. Baker, U.S.A., on temporary duty at the Presidio General Hospital.

Dr. Fred M. Barney, U.S.A., ordered to Fisherman's Point, Cuba.

Colonel S. E. Bibby, late Surgeon General of Idaho, died at his home in Grangeville, Idaho, November 3, 1905, aged fifty-two.

Lieutenant Robert M. Blanchard, U.S.A., on temporary duty at the Presidio General Hospital.

Lieutenant James Bourke, U.S.A., returned from Fort Howard to the New York Medical Supply Depot.

Lieutenant Perry L. Boyer, U.S.A., granted two months extension of leave.

Dr. Frederick D. Branch, U.S.A., ordered to temporary duty at Fort Jay.

Lieutenant William H. Brooks, U.S.A., ordered before the Washington Promotion Board.

Surgeon C. D. W. Brownell, U.S.N., ordered to the Providence naval recruiting rendezvous.

Lieutenant E. H. Bruns, U.S.A., on temporary duty at the depot of recruits and casualties, Fort McDowell.

Captain Carroll D. Buck, U.S.A., ordered from Fort Leavenworth to accompany troops from Fort Riley to Fort Sam Houston.

Dr. Caspar R. Byars, U.S.A., returned to Fort Sam Houston from Fort Sill.

A. A. Surgeon R. A. Campbell, U.S.N., ordered from Naval Recruiting Party No. 8, to the Cincinnati naval recruiting rendezvous.

Major William Fitzhugh Carter, U.S.A., ordered to Fort Monroe.

Dr. William E. Cass, U.S.A., ordered to Fort Stevens, Oreg. for temporary duty.

Dr. George R. Clayton, U.S.A., ordered from Columbus Barracks to the Philippines.

Captain C. C. Collins, U.S.A., ordered to Fort Walla Walla.

Dr. Robert P. Cooke, late Contract Surgeon U.S.A., removed from Greenville, Ohio, to Riverton, Va.

Lieutenant Harold W. Cowper, U.S.A., granted one month's extension of sick leave.

Major William D. Crosby, U.S.A., granted two months sick leave.

P. A. Surgeon, D. H. Currie, P.H.&M.H.S., ordered from special temporary duty in New Orleans and from temporary duty in San Francisco to San Francisco Quarantine.

A. A. Surgeon V. Dabney, U.S.N., ordered home from the *Southery* and resignation accepted.

Dr. Waller H. Dade, U.S.A., ordered from Fort Duchesne to Fort D. A. Russell.

Lieutenant S. M. DeLoffre, U.S.A., on temporary duty at the Presidio of Monterey, Cal.

Dr. Luis G. de Quevedo, U.S.A., returned to San Juan from temporary duty at Henry Barracks.

Assistant Surgeon Hugh de Valin, P.H.&M.H.S., ordered from special temporary duty at New Orleans to Baltimore, Md.

Lieutenant Wallace De Witt, U.S.A., granted a month's leave.

Dr. Clarence F. Dickenson, U.S.A., ordered to accompany troops on overland march from Fort Douglas to Fort Riley.

Surgeon O. Diehl, U.S.N., ordered from the *Baltimore* home to await orders.

Lieutenant Louis C. Duncan, U.S.A., ordered to Manila, April, 15, 1906, instead of December 15, 1905.

Captain Basil H. Dutcher, U.S.A., granted one month's leave and authorized to delay departure for the Philippines until January 5, 1906.

Assistant Surgeon H. G. Ebert, P.H.&M.H.S., ordered to rejoin station at Fort Stanton, N.M.

Captain Benjamin J. Edger, Jr., granted four months leave from Fort Brown.

Captain James F. Edwards, U.S.A., granted leave of absence to December 31, 1905 and resignation accepted on that date to enable him to engage in private practice.

Dr. George J. Fanning, late Contract Surgeon U.S.A., is now agency surgeon at Fort Belknap, Harlem, Mont.

Major P. J. H. Farrell, I.N.G., was elected Surgeon General of the National Society Army of the Philippines at its annual meeting in Chicago last month.

Major Euclid B. Frick, U.S.A., assigned to temporary charge of the office of the Chief Surgeon, Department of Dakota.

P. A. Surgeon L. D. Fricks, P.H.&M.H.S., ordered from Castries, St. Lucia to New York.

Assistant Surgeon W. H. Frost, P.H.&M.H.S., ordered to rejoin station at Baltimore, Md.

Lieutenant Nelson Gapeñ, U.S.A., ordered to the Depot of Recruits and Casuals, Angel Island, Cal.

Dr. William R. S. George, U.S.A., ordered from Fort Monroe to temporary duty at Fort Greble.

Lieutenant H. C. Gibner, U.S.A., assigned to duty as Surgeon of the transport *Buford* en route to Manila where he will report for duty.

P. A. Surgeon J. B. Greene, P.H.&M.H.S., ordered to rejoin station at Fort Stanton, N.M.

Captain Harry S. Greenleaf, U.S.A., ordered from Fort Moultrie to the Philippines, January 25, 1906.

Surgeon G. M. Guiteras, P.H.&M.H.S., ordered to rejoin station at Cairo, Ill.

Assistant Surgeon J. A. Guthrie, U.S.N., ordered from the League Island Navy Yard to the Buffalo naval recruiting rendezvous.

Assistant Surgeon M. C. Guthrie, P.H.&M.H.S., ordered to Cape Fear Quarantine Station.

Major George H. Halberstadt, Brigade Surgeon N.G.Pa., recently received a serious injury from a rock thrown through the window of a railroad train, in which he was traveling.

Dr. Melville A. Hays, U.S.A., ordered from Vancouver Barracks to Fort Wright for temporary duty.

Captain Louis T. Hess, U.S.A., ordered to Fort Lawton.

Colonel John Van Rensselaer Hoff, Assistant Surgeon General U.S. Army, returned to Washington from his tour of duty as Medical Agent of the United States Army among the Russian forces in Manchuria.

Surgeon E. O. Huntington, U.S.N., ordered from the Navy Department home to await orders.

Major Richard W. Johnson, U.S.A., ordered to additional duty in charge of the Chief Surgeon's Office, Department of the Missouri.

Dr. George H. Jones, U.S.A., granted two months sick leave from Fort Fremont.

Dr. Preston S. Kellogg, U.S.A., ordered from San Francisco to his home at Battle Creek, Mich., for annulment of contract.

Major William L. Kneedler, U.S.A., ordered from Fort Rosecrans, Cal. to the Philippines, January 25, 1906.

Dr. Charles F. Kuhn, U.S.A., ordered from the Philippines to Fort Lawton.

Lieutenant Samuel E. Lambert, U.S.A., granted three months leave.

P. A. Surgeon C. H. Lavinder, P.H. & M.H.S., ordered to rejoin station at Stapleton, N.Y., and granted a month's leave.

Surgeon H. L. Law, U.S.N., retired, ordered to the Boston naval recruiting rendezvous.

Major William F. Lippitt, U.S.A., ordered from San Juan, P.R., to Fort Assinniboine.

Dr. Thomas S. Lowe, U.S.A., granted a month's extension of leave.

Lieutenant Patrick H. McAndrew, U.S.A., granted a month's leave.

P. A. Surgeon P. E. McDonnold, U.S.N., ordered from the Washington Naval Dispensary to the *Dolphin*.

Assistant Surgeon F. H. McKeon, P.H. & M.H.S., ordered to rejoin station at New Orleans, La.

P. A. Surgeon John McMullen, P.H. & M.H.S., ordered to New Orleans for special temporary duty, thence to rejoin station at Ellis Island.

Surgeon G. M. Magruder, P.H. & M.H.S., ordered before a Board for physical examination.

Assistant Surgeon R. H. Michaels, U.S.N., ordered from the Kansas City naval recruiting rendezvous home to await orders.

Lieutenant Charles F. Morse, U.S.A., granted three months' leave.

Assistant Surgeon E. H. Mullan, P.H. & M.H.S., ordered to rejoin station at Ellis Island.

Captain Edward L. Munson, U.S.A., granted two months' leave.

Assistant Surgeon F. M. Munson, U.S.N., ordered to the *Lancaster*.

Assistant Surgeon J. F. Murphy, U.S.N., ordered from the Buffalo naval recruiting rendezvous before the Promotion Board at Washington and then to await orders.

Dr. George Newlove, U.S.A., granted one month's extension of leave.

Lieutenant Robert E. Noble, U.S.A., ordered from the Presidio General Hospital to the Angel Island Depot of Recruits and Casuals. and then to Fort Casey.

Major William O. Owen, U.S.A., ordered before the San Francisco Retiring Board.

Dr. Wallace E. Parkman, U.S.A., granted one month's leave.

P. A. Surgeon R. W. Plummer, U.S.N., ordered from the Charlestown Navy Yard to the Kansas City naval recruiting rendezvous.

Surgeon J. C. Pryor, U.S.N., ordered from the Naval Medical School to the Washington Naval Dispensary.

Dr. Julius M. Purnell, U.S.A., ordered from the Philippines to the Department of California, and to temporary duty at Alcatraz Island.

Lieutenant Will T. Pyles, U.S.A., ordered to Jefferson Barracks.

Captain William W. Quinton, U.S.A., returned from Fort Barrancas to Fort McPherson.

Major Ogden Rafferty, U.S.A., ordered from Fort Monroe to San Juan, P.R., and granted two months leave.

Major Thomas U. Raymond, U.S.A., granted two months leave.

Dr. M. A. Rebert, U.S.A., ordered from Fort Totten to Fort Schuyler for temporary duty.

Lieutenant Charles R. Reynolds, U.S.A., ordered to the Philippines, acting as Surgeon on the transport *Logan* en route.

Surgeon T. W. Richards, U.S.N., ordered to the Norfolk Naval Hospital.

Surgeon C. E. Riggs, U.S.N., ordered from the *Dolphin* home to await orders, and thence to the *Franklin*.

Lieutenant Chandler P. Robbins, U.S.A., granted one month and a third leave.

Lieutenant E. L. Ruffner, U.S.A., ordered before the Washington Promotion Board.

Surgeon H. W. Sawtelle, P.H. & M.H.S., granted a month's leave.

Dr. Robert E. Sievers, U.S.A., granted three months leave.

Dr. Ernest F. Slater, U.S.A., assigned to duty at Washington Barracks.

Assistant Surgeon F. C. Smith, P.H. & M.H.S., ordered to rejoin station at Detroit, Mich.

Dr. Frederick H. Sparrenberger, U.S.A., ordered from Fort Mott to Fort Washakie.

Surgeon R. Spear, U.S.N., ordered to the *Baltimore*.

Surgeon L. W. Spratling, U.S.N., ordered from the New Orleans Naval Station to the League Island Navy Yard.

Major Burpee L. Steeves of Weiser, Idaho, appointed Surgeon of the 2nd Regiment Idaho N. G.

Assistant Surgeon E. M. Steger, P.H. & M.H.S., ordered to rejoin station at Philadelphia, Pa.

Medical Inspector Franklin Bache Stephenson, U.S.N., received the degree of LL.D. from Bucknell University in recognition of his extensive scholarship.

P. A. Surgeon J. Stepp, U.S.N., ordered to the *Southery* with additional duty at the Portsmouth Navy Yard.

A. A. Surgeon J. W. Stevenson, P.H. & M.H.S., granted a month's leave.

Dr. Harrison W. Stuckey, U.S.A., ordered to Fort Snelling.

Surgeon E. Thompson, U.S.N., ordered to the Charleston, S. C. Navy Yard.

Surgeon J. C. Thompson, U.S.N., ordered from the Providence naval recruiting rendezvous to the Asiatic station.

Assistant Surgeon E. A. Vickery, U.S.N., detached from the *Franklin* and granted twelve days leave.

Lieutenant S. H. Wadhams, U.S.A., granted a month's leave with permission to apply for a month's extension.

Assistant Surgeon W. K. Ward, P.H. & P.H.S., ordered from Bridgetown, Barbados to New York.

Dr. Clarence A. Warwick, U.S.A., arrived at Fort Mott for duty.

Surgeon E. Wasdin, P.H. & M.H.S., ordered to rejoin station at Memphis, Tenn.

Dr. J. Samuel White, U.S.A., granted two months leave.

Lieutenant Allie W. Williams, U.S.A., granted one month and ten days leave.

Captain William P. Woodall, U.S.A., granted a month's sick leave.

Lieutenant Frank T. Woodbury, U.S.A., on temporary duty at the Presidio General Hospital.

Dr. Stephen Wythe, U.S.A., order for Philippine service revoked.

THE ARMY CANTEEN is the title of a brilliant editorial which appeared in the *Medical Record* of the 4th inst. The intelligent interest shown by its attitude can not but be of value to the cause.

THE ARMY MEDICAL SCHOOL, 1905-1906. The following is the list of students in attendance at the Army Medical School for the present session: Major Vernon J. Hooper, Surgeon Mich. N.G.; Contract Surgeons Lawrence P. Desmond, Thomas F. Duhigg, Charles E. Freeman, Louis H. Hanson; Herman R. Haseltine, Oswald F. Henning, Lucius L. Hopwood, John R. Hicks, Harold W. Jones, Albert G. Love, Henry B. McIntyre, Henry J. Nichols, Omar W. Pinkston, Matthew A. Reasoner, Howard A. Reed, Ferdinand Schmitter, Albert H. Wilton.

THE NAVY MEDICAL SCHOOL, 1905-1906. The following is the list of students at the Navy Medical School for the present session: Assistant Surgeons R. A. Warner, E. O. J. Eytinge, G. M. Olsen, E. H. H. Old, G. K. McConnon, E. R. Marshall, G. S. Hathaway, H. T. Nelson, P. R. Stalnaker, F. E. Sellers, C. B. Munger, F. M. Shook, M. E. Lando, F. H. Brooks, J. B. Mears, E. C. White, E. U. Reed, J. L. Taylor, T. W. Reed, E. L. Woods, T. G. Foster.

THE NATIONAL GUARD AND THE ARMY MEDICAL SCHOOL. Colonel Charles L. Heizmann, President of the Army Medical School remarks in his annual report: "At this session was inaugurated the training of medical officers of the militia of the States in everything pertaining to military medicine as distinct from naval, municipal, State and civil medicine, etc., in order that, under the Dick law, they might become qualified in the emergency of war to perform all the duties of military surgeons of the National Army. If my interpretation of the purpose is correct, I regret to report that the result was not satisfactory. All these officers were studious and earnest, and all would have contributed to the sanitary and disciplinary education of the organizations to which they belong had they returned to them. The majority, however, developed an intention to use the school as a means of employment in the regular establishment, thus to deprive their States of their services. One succeeded in receiving a commission in the Army and two secured contracts. This result is interesting in demonstrating the need of some regulation by which the purpose of the law would be fulfilled in greater part, and at the same time secure for the regular and volunteer forces the best material possible. This last point will be attained by requiring all militia medical officers, who have served one year as such and who have been recommended by the governors of their respective States, to pass an entrance examination similar to those exacted of line officers by the Artillery School and the Infantry and Cavalry School."

Current Literature.

MILITARY HYGIENE.*

IN a comparatively small work of 400 pages Lieutenant Colonel Caldwell of the Royal Army Medical Corps has produced a picture of ideal military hygiene in firm strokes and deeply accentuated lights and shadows. The work of the author along hygienic lines has already been noted in this JOURNAL and it is a particular pleasure to commend so well-digested and accurate a book upon the subject. The key-note of Colonel Caldwell's work is the theory of self-production of disease in armies, with military hygiene as the great medical sentinel whose duty it is to protect military forces from the attack of "the silent foe." With an introductory chapter on the work of the microbe, the author takes up in detail enteric fever, dysentery, malaria, plague, pneumonia, contagious ophthalmia, dengue, jaundice, cholera, malta fever and barrack-room sore throat, following more generally with a consideration of animal parasites, water, air, food, clothing, refuse disposal, climate and alcohol. Chapters on the limitation of the spread of communicable diseases in peace and in war take up these questions in a highly intelligent and accurate manner. A chapter on sick transport is well worked out and the section upon physical deterioration in connection with the army is of the greatest interest. It is especially interesting to note that the author brings his work to an end with definite conclusions in a chapter devoted to that purpose,—a point which is properly presented in but few medical or scientific works and for which Colonel Caldwell is to be especially commended. Though naturally adapted more particularly to the British and Indian medical services, the writer has

***Military Hygiene.** By Lieut. Col. ROBERT CALDWELL, R.A.M.C. 8vo: pp. 416, with 52 illustrations. London, Ballière, Tindall & Cox, 1905.

not confined himself to British sources of information, but the work reveals many traces of study into American conditions, all accurately and admirably made.

A PHYSICIAN'S POCKET ACCOUNT BOOK.*

THE Physician's Pocket Account Book, prepared by Dr. J. J. Taylor, the accomplished editor of the Medical Council, has been before the profession so long that it is hardly necessary to mention it even with commendation. A new edition just published is fully up-to-date and will be of much advantage to the profession.

DISEASES OF INFANTS AND CHILDREN.†

IN a convenient form for reference and study and author has clearly and concisely produced an outline of pediatrics which can not but be of great service to the student and practitioner as well. The text is accurate, notwithstanding its telegraphic brevity, and will undoubtedly be found of great advantage.

HOWELL'S PHYSIOLOGY.‡

THE subject of physiology would seem, by this time, to have about exhausted the possibilities of original research, but the later discoveries, brought about by experimental investigation, demonstrate the fallacy of this opinion and show the necessity of frequent new works upon the subject, with the substitution of new theories for old and the insertion of new facts for exploded theories. The work of Dr. Howell is an admirable presentation of the latest information in physiological knowledge and forms a most reliable guide to the student and practitioner upon the subject.

***Physician's Pocket Account Book.** By J. J. TAYLOR, M.D. 16mo.; pp. 200. Philadelphia, The Medical Council, 1905.

†**A Manual of Diseases of Infants and Children.** By JOHN RURA, M.D. 12mo; pp. 404, with numerous illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

‡**A Textbook of Physiology.** For Medical Students and Physicians. By WILLIAM H. HOWELL, M.D. 8vo; pp. 905, with 271 illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

DISEASES OF THE SKIN.*

THE subject of diseases of the skin is one to which, in times past, comparatively little attention was paid by the general practitioner, notwithstanding the frequent occurrence of affections of the outer envelope of the body in every-day work. The appearance of numerous books upon the subject shows however a growing demand for information upon this important topic, and among these, the treatise of Prof. Stelwagon is one of the best. In this new fourth edition, the author has added to the usefulness of the work by a number of additions, including thirty-eight cuts and six plates, with twenty new pages of text, the whole forming a work of the highest value and usefulness to the profession.

A POCKET MEDICAL FORMULARY.†

THIS little work has for many years been a useful remembrancer to the practitioner, and its many suggestive formulæ, with their accurate combinations, have been of great value. In the new, seventh, edition the text has been thoroughly revised and numerous new remedies and therapeutic measures have been added, materially increasing its well known usefulness.

INTERNATIONAL CLINICS.‡

THE interesting series of the International Clinics continues to appear regularly and creditably, Volume III of the Fifteenth Series furnishing a valuable collection of original papers in all branches of medicine from authorities of the highest standing in the profession.

***A Treatise on Diseases of the Skin.** By HENRY W. STELWAGON, M.D. *Fourth Edition.* 8vo; pp. 1135, with 290 illustrations. Philadelphia and London, W. B. Saunders & Co., 1905.

†**Saunders' Pocket Medical Formulary.** By WILLIAM M. POWELL, M.D. *Seventh Edition, revised.* 12mo; pp. 301, with thumb index. Philadelphia and London, W. B. Saunders & Co., 1905.

‡**International Clinics.** Edited by A. O. J. KELLY, M.D. *Fifteenth Series, Vol. III.* pp. 302, with numerous illustrations. Philadelphia, J. B. Lippincott Co., 1905.

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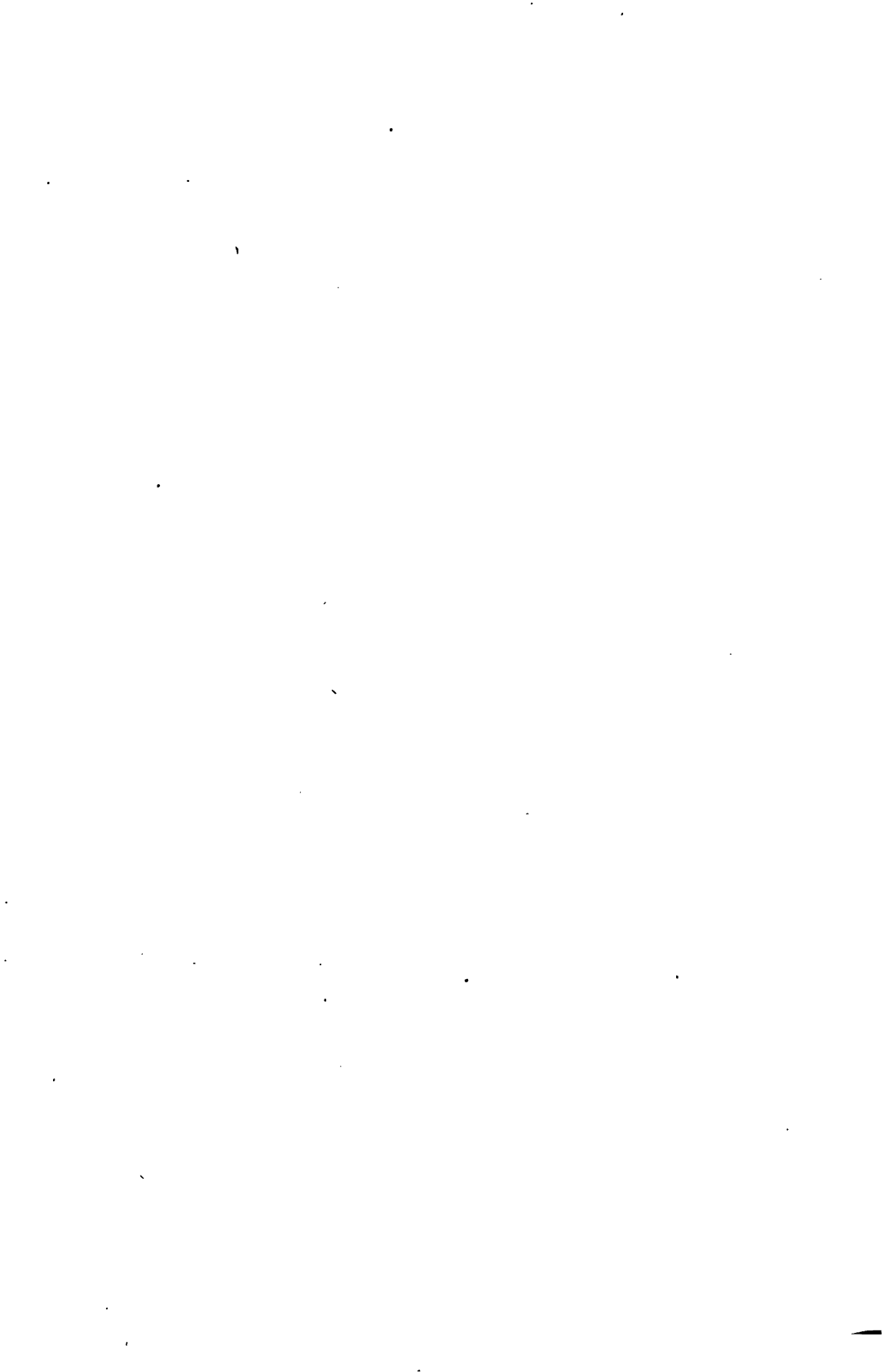
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